

CTO

The Magazine for Information Executives

HOW TO
MEASURE THE ROI
OF TRAINING

PAGE 128

DIRTY DATA
COSTS MILLIONS—
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\$250,000,000
THAT I.T. COULD SAVE A&P

...and his fingers are still crossed Page 80

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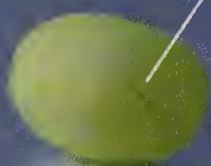
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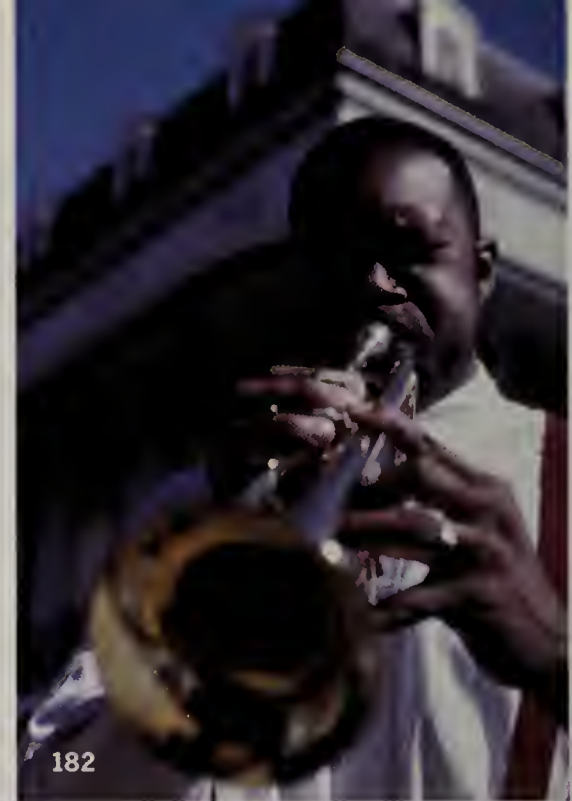
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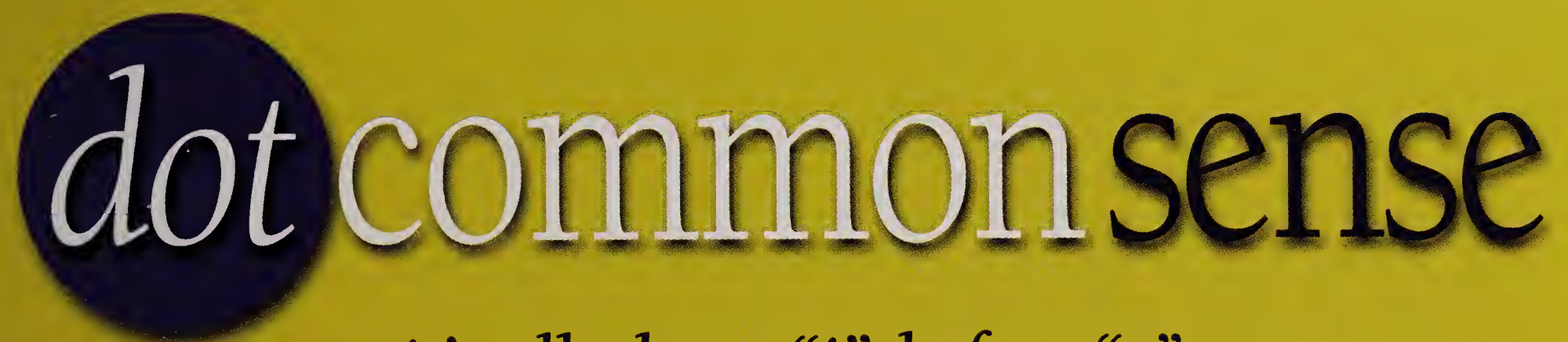
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SOUND OFF For opinion on the managerial, political and ethical dilemmas that confront CIOs daily, read Martha Heller's weekly column and join the debate.
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Steve Kiely on Keeping Your Networks Up and Running

ASK THE EXPERT Have a question about maintaining 24/7 network availability? Until the end of February, Steve Kiely, president and CEO of Maynard, Mass.-based Stratus Computer, answers your questions about fault-tolerant computing.
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Mary Ellen Brantley and Chris Coleman on Hiring Tech Talent

ASK THE AUTHOR Chances are, you've got a few empty cubicles to fill. Mary Ellen Brantley and Chris Coleman, coauthors of *Winning the Technology Talent War: A Manager's Guide to Recruiting and Retaining Tech Workers in a Dot-Com World* (The McGraw-Hill Cos., 2001), are fielding reader questions until Feb. 28. www.cio.com/books

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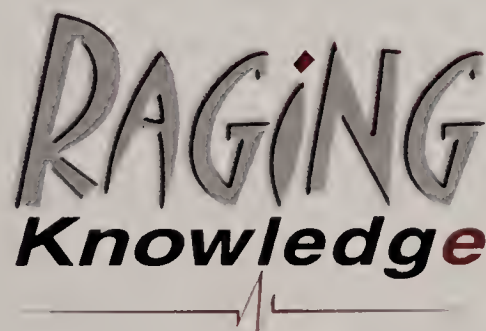
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From the Editor

lundberg@cio.com

Gluttons for Punishment?

In her Jan. 11, 2001, Sound Off column (*comment.cio.com*), Senior Web Editor Martha Heller posed the question: What bugs CIOs? The responses poured in fast and furious, with close to 50 postings in the first couple of hours.

Reading through the comments, one has to ask the question: Why on earth would anyone become a CIO? These are virtual laundry lists of professional horrors: clueless CEOs, untrustworthy staff, untruthful vendors and consultants, suspicious business peers and unreasonable expectations by all.

Not all of the perspectives are despairing. Both in the Sound Off column and in the responses I've received to my column "The Myth of Alignment" (Dec. 15, 2000/Jan. 1, 2001), many readers have said enough already. CIOs (and *CIO* magazine) are perpetuating the disconnect between business and IT by continuing to whine about it. "If we devoted our time and energy to being businesspeople that deliver results to our business partners, on time, within budget, with the functionality they needed, we would not have to talk about alignment—it would already be there," wrote one CIO.

Another fellow agreed: "The formula [to achieve alignment] is: aggressive partnering with the business units; complete and thorough rationalization of projects (value proposition); a contemporary IT organizational model and careful selection and retention of professionals; and finally, execution and lifelong support."



A third addressed the broader challenges of any manager: "Many years ago in my first management position, a very wise CFO told me that as long as I followed these principles we all would prosper: 1. Tell me what I need to know when I need to know it—not after the fact; 2. Tell me the truth. I can handle it. You are not here to be a 'yes' man. If you have to do that to keep your job, then do something else—it's not worth it; 3. Accept the fact that we will all fail at times during our business careers. Remember that failure is as much a learning experience as success."

But such prescriptions hold little solace for CIOs like the one who writes, "Senior management has repeatedly asked me for direction, ignored my recommendations, screwed things up and then blamed me for the errors."

So are CIOs gluttons for punishment? Based on some of the commentary, I have to say, some undoubtedly must be. But by far the more predominant trait that I've come to identify with CIOs is an almost obsessive addiction to challenge. As one IT executive said after describing a seemingly impossible situation, "If [the job] was boring and predictable, we would probably not be doing what we do!" To me, that sounds more heroic than anything.

What do you think? Check out the Sound Off postings and let me know at *lundberg@cio.com*.

Allie Lundberg



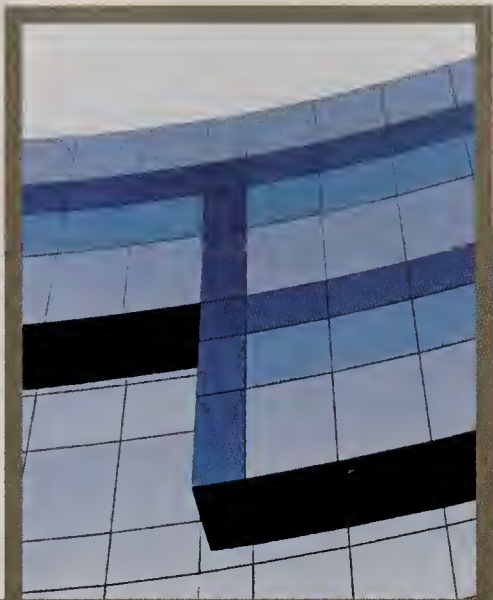
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InBox

Reader Feedback

JUDGMENT CALL

In his Ask the Expert column ["Do the Right Thing," Aug. 1, 2000], Alan Yuspeh has the role of the ethics officer almost perfectly wrong, however consistent that mistaken notion may be with the larger societal understanding of ethics, which is equally wrong-headed.

Yuspeh tells us that an ethics officer ought to be "a good listener, open to varying ideas, highly nonjudgmental and something of a visionary and idealist." Good listener? Fine. Visionary and idealist? Well, maybe, but what do those nouns mean? Open to varying ideas? Sometimes. But would that include being open to the idea, say, of running off with the boss's spouse? Not a career enhancer.

The real problem is his notion that an ethics officer should be highly nonjudgmental. Even as we Americans prize tolerance, we are also supposed to cherish being nonjudgmental. But tolerance is moral nonsense if what we are tolerating is evil: We should be tolerant, for example, of each other's races and creeds, but intolerant of racism, creeds

that smack of racism and other evils. Should the ethics officer be highly nonjudgmental when he learns that Joe is stealing company funds or that Sally is selling company products for personal gain? After all, aren't all values and virtues the same? The answer is no, all virtues and values aren't equally good, and ethics is about knowing the differences among competing claims to goodness, truth and beauty. If your company has a nonjudgmental ethics officer, fire that officer and find one with moral sense and moral backbone—one who can tell right from wrong and who isn't afraid to say so publicly. If that's being judgmental, it's also called having conviction.

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Ask the Expert

We're Not Experts on This, but We Know Someone Who Is

Do the Right Thing

Alan Yuspeh, senior vice president of ethics, compliance and corporate responsibility for Nashville, Tenn.-based Columbia/HCA Healthcare Corp., answered readers' questions on CIO.com about his area of expertise, chief ethics officers

Q: What is causing the rise in demand for chief ethics officers?

A: If corporate ethics is defined broadly—to include legal compliance, ethical conduct and corporate social responsibility—there is increasingly a recognition that putting these matters together under a specific corporate officer has much benefit. The key tasks involved—standard setting, awareness building and internal report handling—are not well handled in many organizations. And in other organizations, a separation of responsibilities may lead to a lack of unity in approach. The position of chief ethics officer increases the emphasis on such matters and does so in a cohesive fashion.

Q: What are the primary differences between this role and the functions normally filled by the compliance officer and internal security officer?

A: At Columbia/HCA, I serve in all three roles. If one uncovers an ethics problem alone, it would typically involve articulating standards of conduct in terms of organizational values



and culture and instilling these throughout the organization. It might also involve ethical sensitivity of major organizational decisions. Ideally, an effective corporate ethics officer would advise the company on business issues that pose value-laden decisions.

Q: As a chief ethics officer, how would you craft and subsequently enforce a global ethics policy for a multinational organization? Given the diversity of cultures and complex and different cultural norms and business practices in different regions of the world, is it possible to expect your employees and other business partners (vendors, suppliers, partners via joint ventures, alliances and so on) to adhere to a common policy?

A: Your question is very insightful and frankly drives into one of the most challenging issues that face multinational corporations.

Alan Yuspeh replies: I think Mr. Toner has completely misunderstood what I had in mind. The term nonjudgmental has nothing to do with the points he raises. Of course an ethics officer, like

any good manager, needs to use his judgment and has to have a sense of right and wrong. And of course when the ethics officer sees something that violates either legal requirements or a company's ethical code, he needs to act to correct that. What I had in mind was this: In normal day-to-day conversation, when we hear someone described as "judgmental," it usually means that the person is somewhat intolerant, has his own view of how things should be and tends to harshly judge others who don't fit with that picture. On the other hand, when we speak of someone as "non-judgmental," it is usually a compliment, meaning that the person is open, tolerant, thoughtful, willing to accept diversity and generally sensitive. That is the set of characteristics that I think are subsumed in the concept of being nonjudgmental. The ethics officer must not approach situations or people at the outset in a way that has a condemning or critical aura. If after investigation, however, it is found that someone has done something wrong, then some appropriate discipline is required, and yes, some judgment needs to be applied.

THE ART OF THE MATCH

Choosing a consultant can be as tedious as selecting a significant other. From a consultant's perspective, it may be even worse. In "I Love Our Consultant, but Can I Trust Him?" [Oct. 15, 2000], [Oakwood Homes' Senior Vice President of MIS] Chris Paul's experiences from the Big Five firms to the consultant-



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come-lately's may be more typical than people imagine. It sounds as though the account managers he dealt with were more interested in their performance bonus than in customer service and loyalty. Although the selection process can be difficult, so is the process of selecting full-time employees, as Citizens Financial Group's CIO Bill Wray points out.

processes are. More often, the important point is how uniquely the client conducts the business rather than what the business is. Will the client adopt the software or modify it to make it appear like the old legacy software that everyone is used to? Dealing with change plays a major role in the success or failure of any business effort. Train-

Handing over the complete control of a mission-critical project to a third party can spell disaster.

Supply and demand will always wreak havoc on any selection process, and the exaggerated technical arena will only make the process more frustrating.

Every technical success story has an opposing horror story. In most cases, due diligence might have reduced the risks for all involved. Handing over the complete control of a mission-critical project to a third party can spell disaster.

Building a consultant/client relationship should follow specific guidelines. Business should come first, and personal factors should be a distant second. Honesty and a willingness to hear and digest the truth about project specifics should be primary client traits. And consultants should be willing and able to carefully rock the boat in order to help produce a more effective solution for the client.

[Senior Vice President of Corporate Technology for First American Real Estate Solutions] Mike Amble's points about shorter business cycles and reaction time are very important, because of reduced margins and customer supply chain issues. As far as spending time on prep work for major projects, why aren't clients willing to pay for critical-planning-support consulting instead of wanting it for free?

Being a consultant, I always hear how unique each client's business

ing and user support are also major contributing factors.

There is no real substitute for true business decision making. The more of a risk taker you are, the less information you may need to make an important decision. If you are less of a risk taker, you may kill a project with mountains of details before it ever gets off the ground. Understanding your own style will directly affect how you choose consultants.

The sidebar "The Don'ts of Picking a Consultant" was nice to see, but its points should not be used as strict guidelines. Recertification may be great for certain skill sets and meaningless for others; there is no substitute for business acumen. Personality traits are important, but it may be more important to pick a consultant who doesn't see everything your way. Why risk developing a stale solution? A controlled amount of opposing views may produce a more ideal solution for your organization.

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KM PROBLEMS

"Davenport On: The Last Big Thing," [Nov. 1, 2000] mentions that

knowledge management is quiet. I think the reason may be that the benefits of KM are not obvious or are difficult to measure.

As a KM team member at an ISP, I recently proposed that the company build a system-troubleshooting knowledge base, which will help system engineers and administrators accumulate troubleshooting information and shorten the troubleshooting response time. But I faced a problem in that I couldn't convince the administrators that the benefits would exceed the costs. They don't believe that it's valuable to record trouble solutions that may be obsolete a few months later in this rapidly changing environment. And the most important factor is that they feel the knowledge base will increase their workload.

I think my problem is that I couldn't provide measurable and visible benefits that would leverage the costs. People are shortsighted. If there's no obvious and immediate economic value, they don't want to pay the price. Moreover, a knowledge-oriented culture doesn't yet exist in my company. Even though everyone knows it's the era of the knowledge economy and knows about KM, they are reluctant to make an extra effort to make things better. It's really difficult to establish a knowledge-oriented consensus or culture among heterogeneous individuals or teams.

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WHAT DO YOU THINK?

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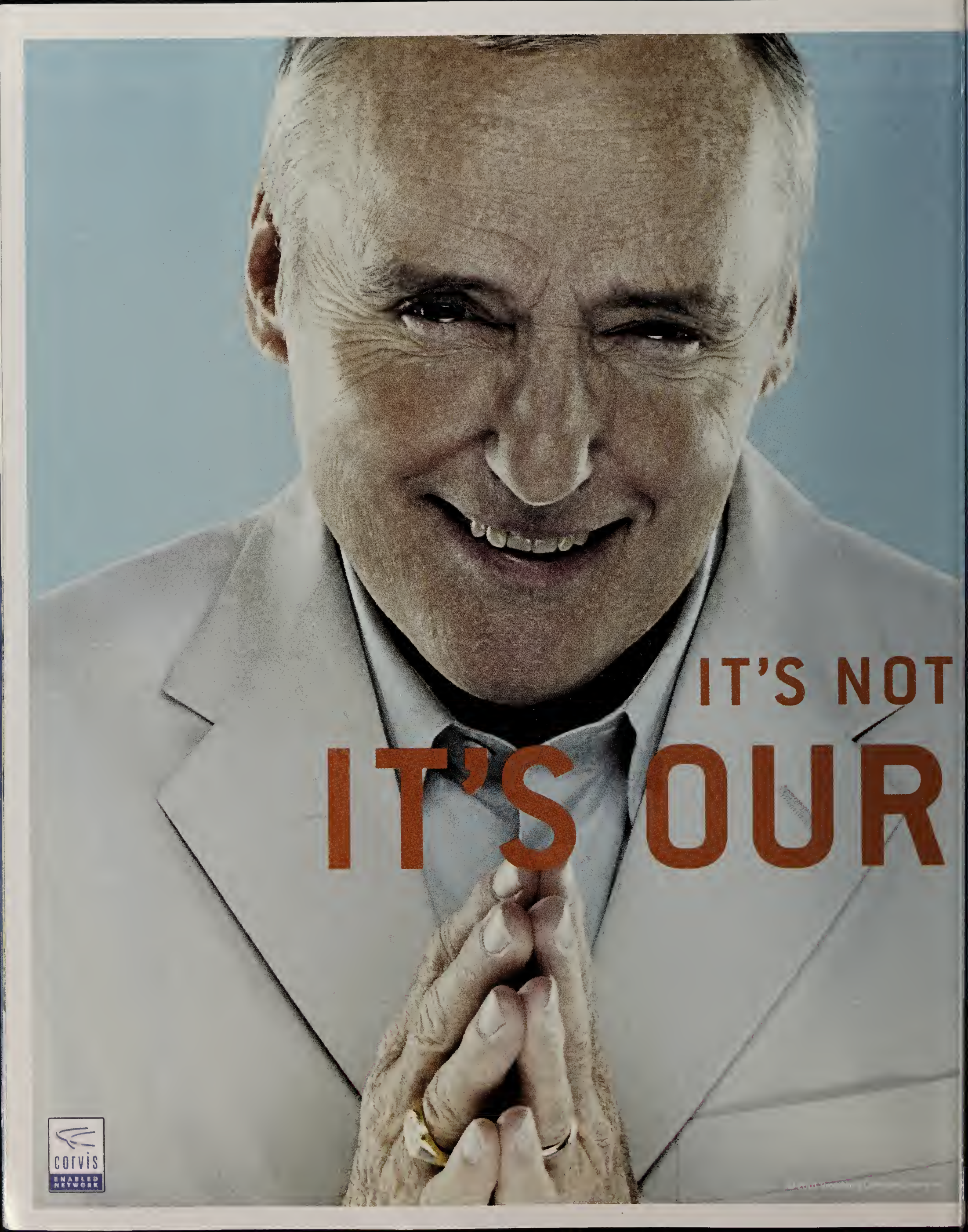
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Edited by Sara Shay and Sandy Kendall

END - USER RELATIONS

Polly Wanna Chat Room?

By Angela Genusa

ON THE INTERNET, you can never really be sure if you're talking to a man or a woman. Or a parrot. And you very well could be addressing the latter if Irene Pepperberg has her way.

Pepperberg, a professor of animal behavior at MIT's Media Lab in Boston, is leading a research team that's exploring using the Internet to help alleviate social isolation and boredom in parrots and other pets.

Pepperberg, who has studied gray parrots for more than two decades, says these birds are social creatures that need companionship from other living things. Gray parrots have walnut-size brains and can reason, comprehend and calculate at the level of a 4-year-old child, Pepperberg says. And like toddlers, they demand attention. Left alone in cages for long stretches of time, they may become withdrawn, disobedient and self-destructive, plucking out their feathers and chewing on their wings.

Pepperberg believes the Internet could help alleviate animal angst. The purpose of the research project, called InterPet Explorer, is to see if parrots can be trained to use computer interfaces and if Internet usage might enhance their lives. "We suggest that intrinsically social, intelligent animals

such as parrots—if given the appropriate tools—may, like humans, learn to augment face-to-face social interaction with online communities and relationships," says Pepperberg.

At the MIT Media Lab, a 2-year-old African gray parrot named Arthur is learning the basics of using a computer. Arthur, also known as Wart (after Merlin the magician's nickname for King Arthur in the book *The Once and Future King*), is learning how to move a joystick and click levers with his beak to choose images and tunes from a plastic box connected to a modified Web browser. Once he mas-

ters that interface, he will be able to use Internet software developed by Pepperberg and her team members—Ben Resner, a children's software developer and MIT graduate student, and Bruce Blumberg, an assistant professor at the MIT Media Lab.

The research might also lead to new insights regarding usability and interface design for humans. "Traditionally,

Continued on Page 34



Department of **BIG,** Scary Numbers

11 MILLION: number of U.S. 10- to 24-year-olds who subscribed to wireless voice and data services in 2000

24 MILLION: number of U.S. 10- to 24-year-olds who used wireless technology in 2000

30 MILLION: number of U.S. 10- to 24-year-olds who will subscribe to wireless services in 2004

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Polly Wanna Chat Room?

Continued from Page 32

designers have been very linear in looking at computer interfaces, which is why human beings are still working with computers and a mouse," says Alexandra Kahn, spokeswoman for the MIT Media Lab. "Working with animals and thinking in terms of 'How might a parrot or dog interface with a computer?' really broadens that. It's challenged us to think about design and interfaces in a different way."

For Wart, the trick seems to be finding parrot infotainment that will engage him; so far, he has not shown much interest in images in early trials. Pepperberg and her team hope to develop software for Wart that would let him play video games and a four-note musical instrument, watch images and live video feeds of wild parrots, and chat with humans, parrots and even other animals.

Imagine the parrot chat room chatter of the future: "SMP seeks SFP. Must have own crackers."

To learn more about Pepperberg's work, see www.alexfoundation.org.

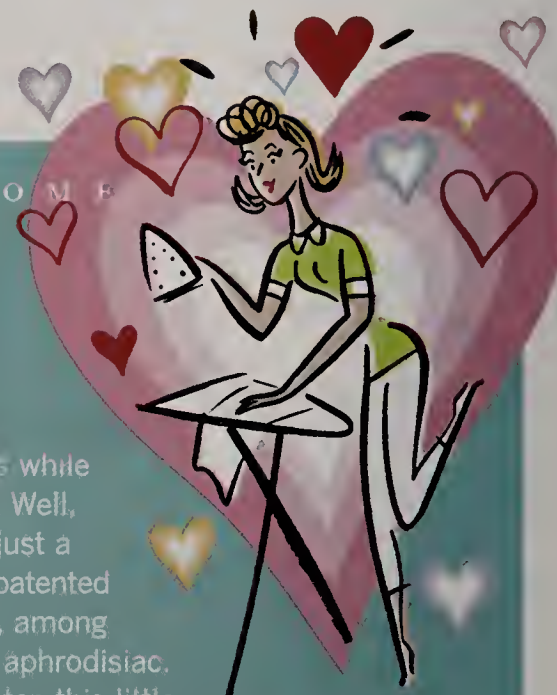
HIGH-TECH HOME

Big Iron?

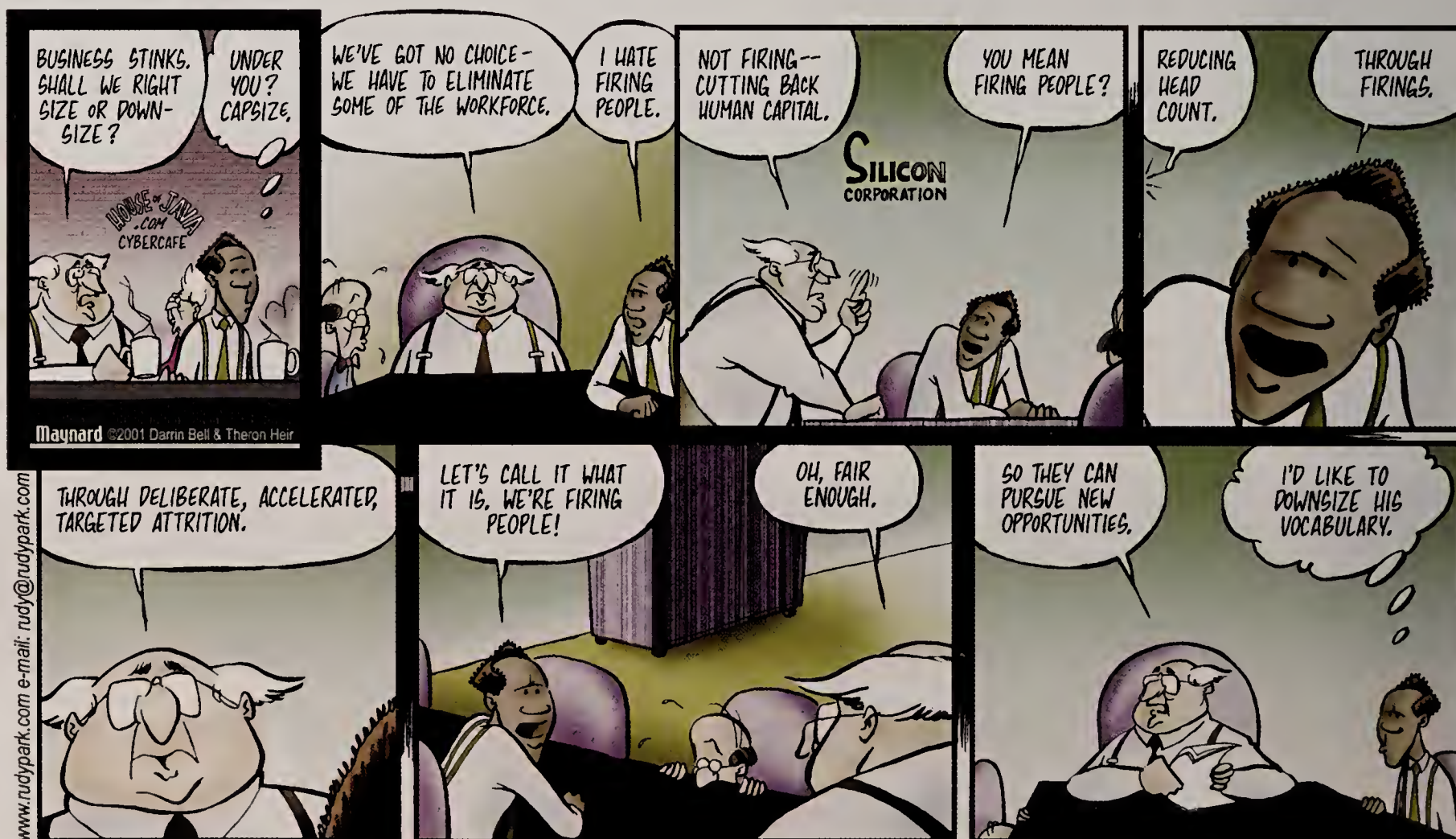
EVERY 13-YEAR-OLD boy knows the joke about the lonely housewife, resigned to her chores while her feminine urges go unfulfilled. Well, look out milkmen, it's no longer just a joke. Procter & Gamble recently patented an aromatherapy steam iron that, among other properties, can work as an aphrodisiac. By releasing scented oils with water, this little iron doesn't just make clothes hot. When the heat turns the water to steam, the oils go up toward the nose turning aroma into amour.

And stains aren't a problem. P&G has developed a way to use polymers to prevent the oils from damaging clothes. This leaves fabric pressers free to experience euphoria from anise, calmness from clary sage and, yes, lust from liquid moon. Whether doing laundry replaces candlelit dinners remains to be seen.

—Ben Worthen

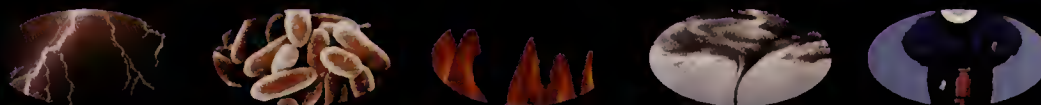


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Washington Watch

Edited by Elana Varon

Rules a Pain in the Wrist?

WHEN THE OCCUPATIONAL Safety & Health Administration (OSHA) issued its standards for ergonomically correct workplaces last fall, detractors immediately sued. The rules say companies have to prevent repetitive motion injuries like carpal tunnel syndrome. But the National Coalition on Ergonomics, the business group that filed the lawsuit, claims the rules are impossible to enforce. It said companies will spend billions of dollars on new equipment that may not prevent these injuries. **Jonathan Eisen**, who speaks for the group, says OSHA made its final ruling without enough scientific evidence that the standards will help.

Is the ruckus justified? Maybe not. OSHA notes it reviewed hundreds of studies about the problem and worked on the rules for eight years before announcing them in November 1999.

Peter Budnick, CEO of ErgoWeb, an ergonomics consultancy, thinks opponents may be reacting more to the potentially stiff penalties for not complying than the mandate that they make their workplaces safer. At a minimum, the rules require that companies give employees information on repetitive motion injuries and appoint someone to take complaints. Even if someone claims a work-related



Peter Budnick

injury, companies may need to make only small changes to employees' workstations to comply with the rules.

Budnick suggests that CIOs who are worried about whether employees have the right computer equipment should do a quick survey of the company's on-the-job injury records and ask workers whether they're comfortable. But he cautions against asking if anybody's hurt. Employees might attribute injuries they got off the job—say, playing basketball—to the typing they do at their keyboards, he says.

Budnick says if your staff spends most of their day using computers, you should already be giving them wrist rests or props to adjust the height of their monitors. "The last thing companies want to do is lose their highly skilled programming staff to a crippling injury like carpal tunnel," he says. "If you do this correctly you are going to save money."

Companies that already help workers prevent repetitive motion injuries are grandfathered by the rules, which means they only have to keep doing what they're doing. OSHA says only one-fourth of U.S. companies will have to change their ways.

— Stephanie Viscasillas

Educating the Workforce

THE I.T. INDUSTRY argues there's an untapped source of workers among minorities and other groups who aren't choosing technology careers because they don't have access to com-

puters. How to encourage them to join the IT ranks? One idea, being pushed by **Rep. Jerrold Nadler**

(D-N.Y.) is to give away \$100 million in training grants to such workers, including women, veterans and senior citizens.

Nadler thinks the grants, which would go to companies or schools that do the training, would be more effective at reaching technology "have-nots," says his spokesman, **Eric Schmeltzer**. He



Rep. Jerrold Nadler

says an alternative approach—giving tax credits for training—wouldn't necessarily target the people who, according to the Commerce Department, still don't have access to technology.

However, proposals for tax credits (see "Washington Watch," Nov. 15, 2000), which would apply more broadly, are more popular. Republicans, who control Congress, don't like singling out social groups for government benefits. The high-tech industry doesn't prefer one approach to the other. **Grant Mydland**, manager of government relations for the Computing Technology Industry Association, says he just wants to see more money going toward training.

— S. Viscasillas

Send Senior Editor Elana Varon your ideas about IT policy at evaron@cio.com. Editorial Assistant Stephanie Viscasillas can be reached at sviscasillas@cio.com.

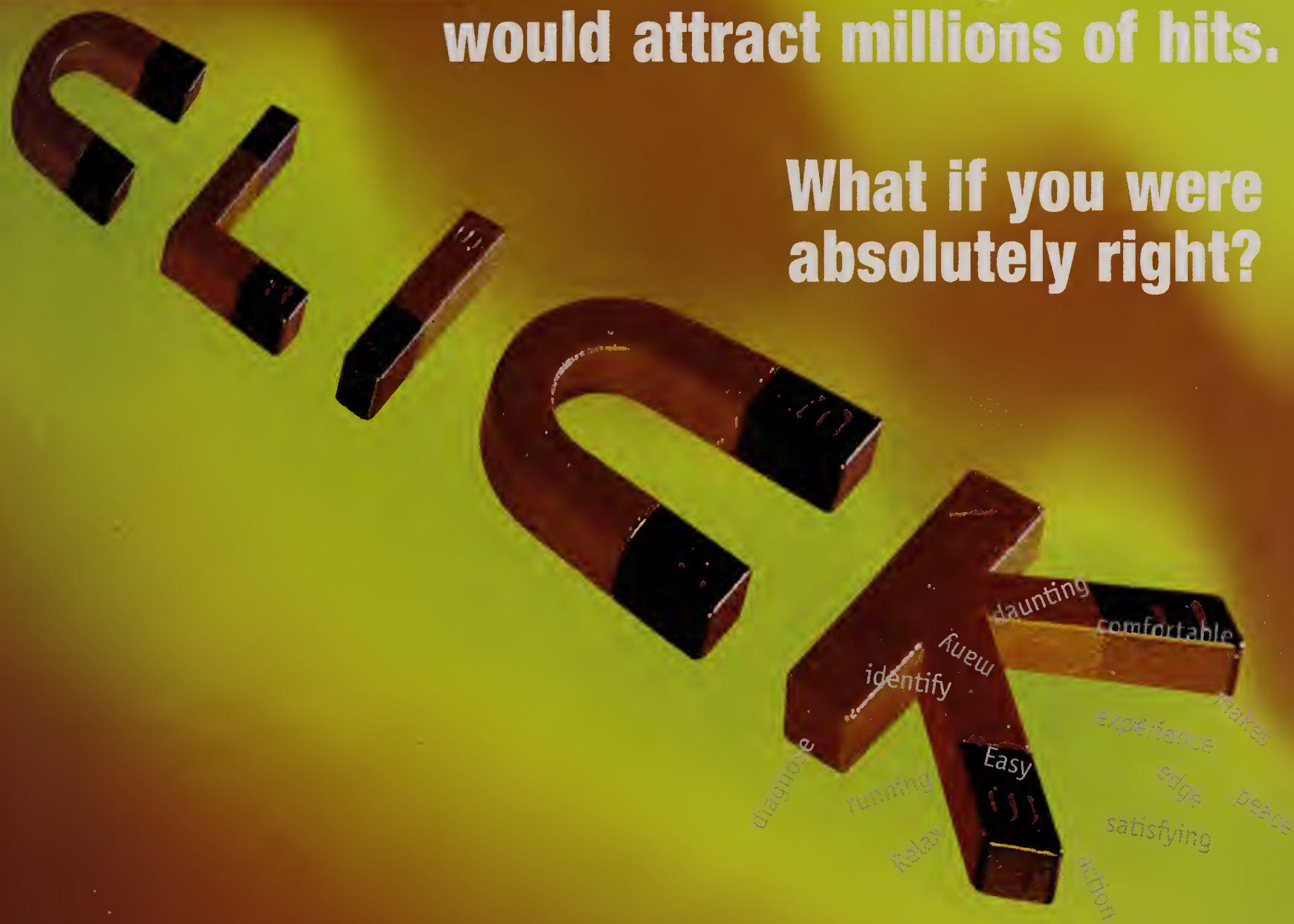
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—President Bush, announcing in December 2000 the nomination of Donald Rumsfeld to be secretary of defense



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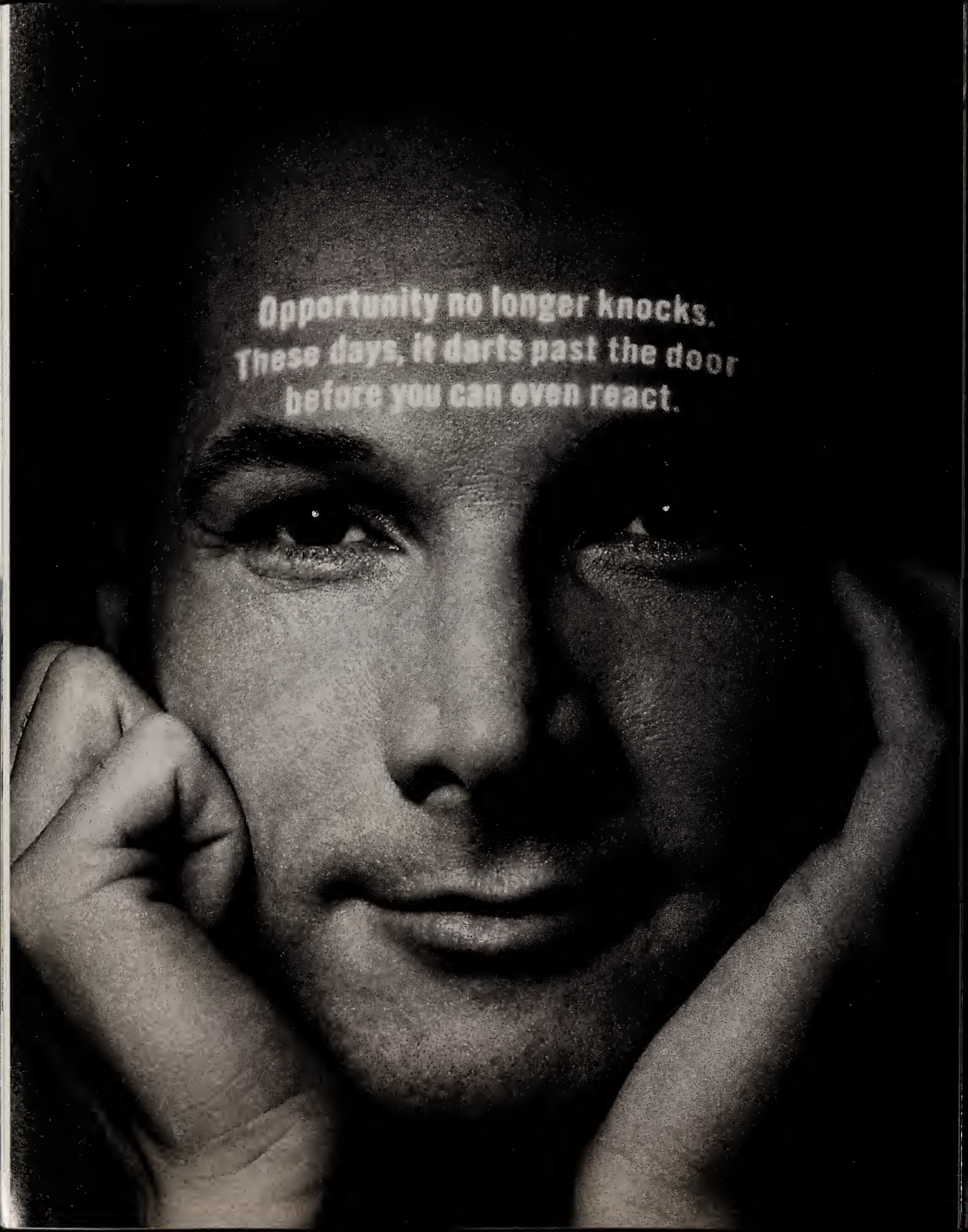
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PROCESS REDESIGN

Did Somebody Say Convenient?

MEALS RECENTLY GOT even happier at four McDonald's restaurants in southern California. Thanks to a time-conscious franchise owner in San Diego, drive-thru customers can now bypass cashiers completely.

Patti Widdicombe, whose family bought its first McDonald's restaurant more than 43 years ago, came up with the idea to "FasTrak" Big Macs using the same windshield transponders that allow for cash-less toll crossings. "I wanted to help customers who waste time

digging around for their wallets at the drive-thru," she says. "I figured if [the transponder] works so well on the tollway, why can't we use it at McDonald's?"

In the spring of 2000 she teamed up with Orange County, Calif.'s toll authority to offer 270,000 FasTrak users the option of skipping the payment window. Receivers mounted near the drive-thru menu detect the transponders, says Karen Garcia, director of operations of McDonald's West division. A light near the register prompts the employee taking the order to confirm that the customer wants to use his FasTrak.

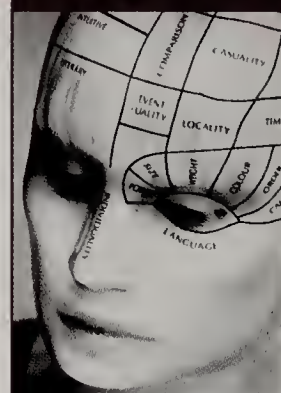
Widdicombe says the response from cus-

tomers, employees and managers has been overwhelmingly positive, which increases the chances that more McDonald's will adopt the FasTrak technology. McDonald's spokeswoman Lisa Howard says that other cash-free alternatives are being tested elsewhere. For example, since October 2000, customers at nine McDonald's in the greater Chicago area have been able to scan their Mobil Speedpass cards to pay. The one thing the transponders can't detect? If you'd like fries with that.

—Heather Baukney



HOT TOPIC



KNOWLEDGE MANAGEMENT

Hoop Dreams

By Lee Pender

ON PAPER, the Los Angeles Lakers should win the NBA title again this year. But basketball is not a game played "on paper." And with the

advent of a new application for handheld devices, it's not scouted that way either.

The Lakers are the first team in the NBA to scrap traditional scouting methods and adopt L.A.-based Infinite Mobility's Pocket Hoops service, which brings a basketball-scouting application to PocketPC devices. In the past, Lakers scouts watched college games armed with a piece of paper for each player being scouted. After evaluating players, scouts mailed reports from all over the country to the Lakers' home office. Reports often sat in piles until just weeks before draft day.

Pocket Hoops lets scouts dial into a telephone connection—the team turned down a wireless option—and immediately transfer information on players. The system includes interfaces that track every aspect of a player's performance—free-throw percentage, shot selection, you name it—and catalog every player with text and recorded voice comments.

To create the perfect scouting tool, Infinite Mobility CEO Jonathan Schreiber and his cohorts scouted games with Lakers General Manager Mitch Kupchak and former Lakers President Jerry West and customized interfaces based on what they saw.

Creating an application that the Lakers' grizzled scouts could and would use was a challenge. Kupchak says he's still getting used to the device.

"We have just started with these things, and the jury's still out," he says. "You can sit in your office and figure it out, but when you're at a game, one small change of a screen and you start to panic."

Still, the Lakers' scouts have become so accustomed to the devices that support calls have virtually stopped, Schreiber says. But, as many benefits as the device has, Kupchak knows it won't guarantee another NBA crown next spring.

"The bottom line is I think it will be easier to use in a game environment than a pad of pages and a pencil," he says. "It doesn't mean you're going to pick the right player on draft day."

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Off the Shelf

Edited by Carol Zarrow

Not Made in Heaven

The Morning After: Making Corporate Mergers Work After the Deal Is Sealed
By Stephen J. Wall and Shannon Rye Wall
Perseus Publishing, 2000, \$25

If you want to strike fear in the hearts of employees, just mention the words "merger" or "acquisition" or any other euphemism for two completely different companies trying to make a go of it.

It is possible, however, according to the authors of *The Morning After*, to make even the most dysfunctional corporate relationship work. Besides

analyzing merger best practices at companies such as Cisco and GE, the authors report their interviews with those companies' key executives and HR representatives, who tell tales of the good, the bad and the ugly aspects of mergers. Particularly interesting are the accounts from middle managers and less-senior employees, who address human issues that go beyond dollars.

Certainly any executive knows that mergers don't benefit everyone: Just as some will profit greatly from a union, there are just as many who have a lot to lose. The authors wisely state that the best way to ensure a smooth merger is to avoid the "arrogant acquirer" syndrome:

If you are the acquiring company, avoid coming in like an ogre stamping out a tiny village. Instead, try to set your feet down gently, where they will do the least amount of damage

—Stephanie Viscasillas

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Now, Discover Your Strengths: The Revolutionary Program That Shows You How to Develop Your Unique Talents and Strengths—And Those of the People You Manage
by Marcus Buckingham and Donald O. Clifton
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Shackleton's Way: Leadership Lessons from the Great Antarctic Explorer
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Viking Press, 2001

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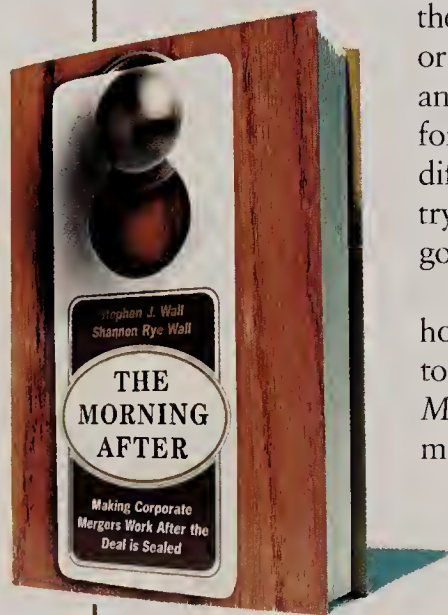
Maestro: Greenspan's Fed and the American Boom
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Simon & Schuster, 2000

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What They're Reading

J. Randolph Bryan, senior vice president for distributed services, Hibernia

National Bank, New Orleans Christopher Locke, Rick Levine, Doc Searls and David Weinberger, *The Cluetrain Manifesto: The End of Business As Usual* (Perseus Publishing, 2000) "While a little extreme in some cases and [having] an almost anti-capitalist tone, it is an excellent book."



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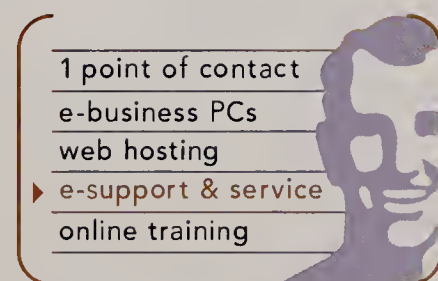
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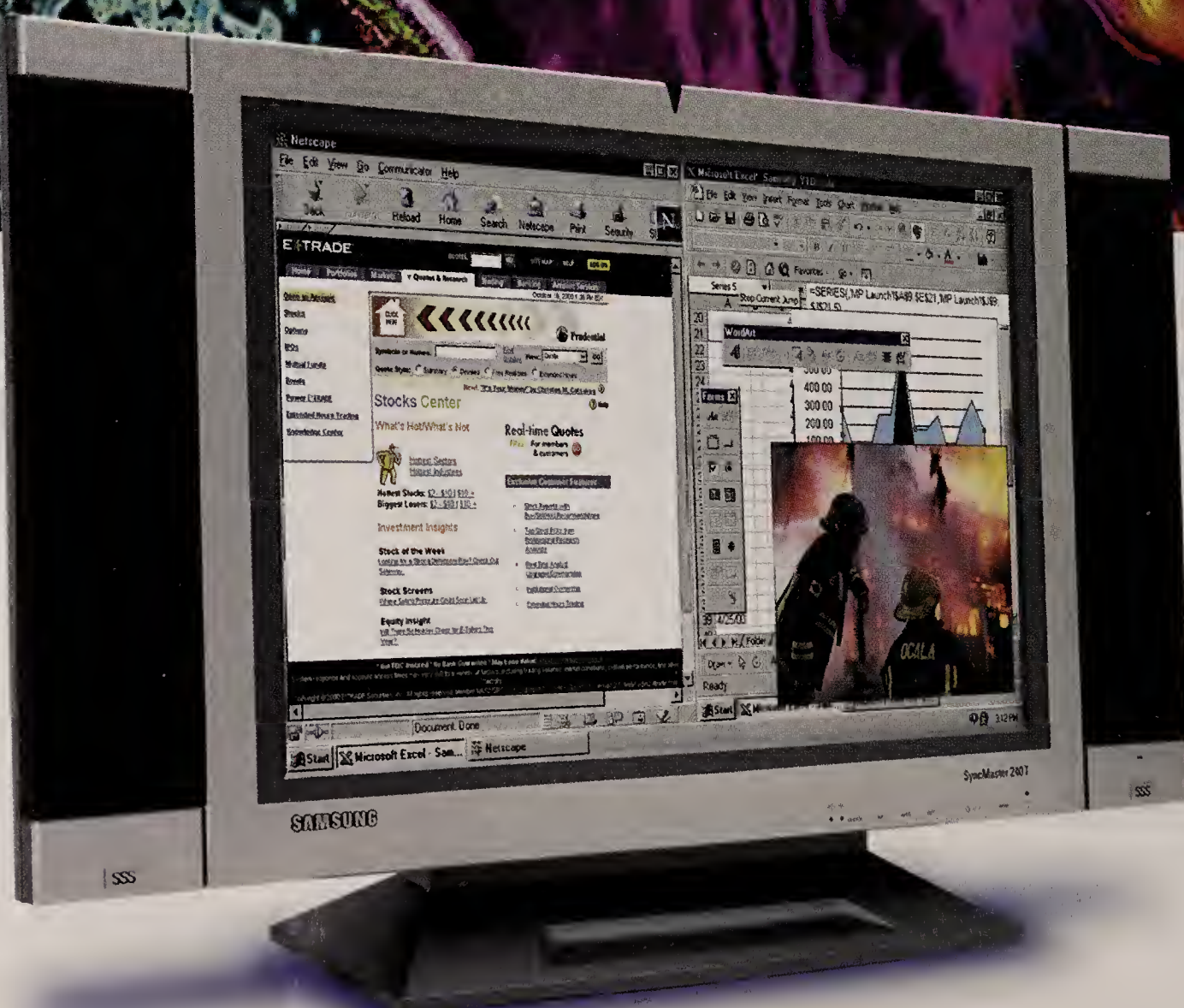
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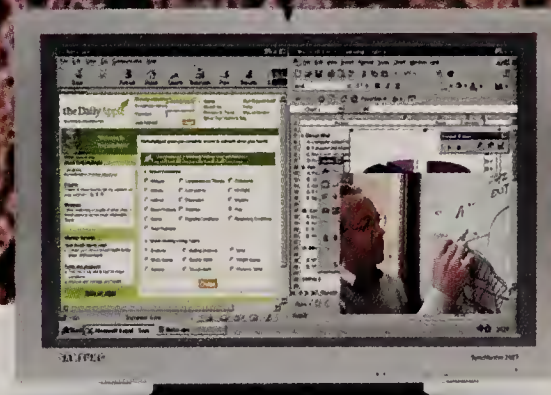
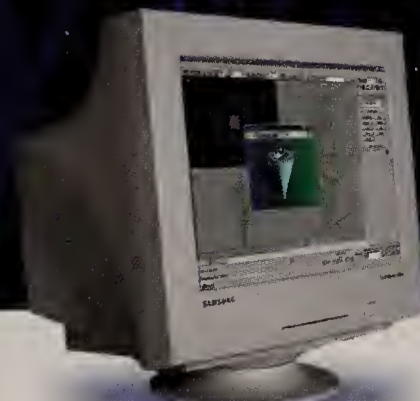
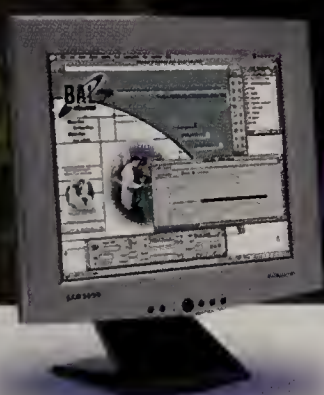
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PERSONAL SECURITY

Baby, Don't Leave Me

By Lauren Capotosto

SOME PARENTS KEEP close tabs on their kids, others keep tags on them. The National Center for Missing and Exploited Children (NCMEC) in Alexandria, Va., estimates that of the 3,500 to 4,000 birthing facilities nationwide, one-third use baby-tagging systems to prevent infant abductions. Patient tagging is a \$100 million to \$150 million market with few competitors, says Malik Talib, president of the Richmond, British Columbia-based EXI Wireless, whose infant tagging system, Halo, is being used in 200 North American health-care facilities.

Luckily, infant abduction is rare. Only 109 cases of infant abductions from U.S. health-care facilities have been documented since 1983, according to NCMEC. "The number isn't high," says Talib. "But you need to consider the impact of a single patient being lost."

Halo systems use active tag technology. When the tag-wearing patient enters a low-frequency field, the tag transmits the patient's ID and whereabouts to a central computer system. The system will then lock doors and hold elevators until the tag wearer has been located or a staff member has attended to the problem. Halo also alerts staff when someone tampers with and removes the tags.

While the technology is a step toward patient safety, Cathy Nahirny, supervisor of case analysis and support division for NCMEC, warns against complacency. "This technology is definitely helpful in preventing abductions, but the human touch and the technology need to go hand and hand." Her justification: Since 1997, the center has documented three cases where infants were abducted by nonfamily members from facilities that had infant security tagging systems.

Talib says the company doesn't know of any babies being abducted with the system properly in place. Greg Popham,

director of security for St. Elizabeth's Medical Center in Edgewood, Ky., found that encouraging. The facility integrated the Roam Alert system, an EXI product usually used to tag Alzheimer's patients, in the newborn unit in 1998, and it has passed each of its annual mock tests (an in-house abduction of a crying baby doll). Now there's leak-proof security.

HOT TOPIC



SUPPLY CHAIN MANAGEMENT

Fall of the Ottoman Empire

By Matt Villano

A JAN. 15, 2000, article in these pages touted the brilliance of Framingham, Mass.-based Furniture.com, a company that sold furniture and other household amenities via the Web. With \$48 million in capital during the first two rounds of funding, the company was ready for some serious growth.

Then disaster struck. Poor management and dwindling cash flow made the company falter miserably. In July, it shut its doors for good, leaving more than 200 people without jobs and thousands more without sofas.

Dotcom deaths are nothing new; still, Furniture.com's demise provides an excellent opportunity to examine what can go wrong when you rest the success of your business on an industry that's never truly seen the black. "Just because you can sell things on the Internet doesn't mean you should," says Heather Dougherty, a retail analyst at Jupiter Communications. "Furniture.com learned this firsthand."

Given the logistics of the furniture industry, Dougherty says Furniture.com was doomed from the start. Delivering large and bulky items was neither easy nor cheap, and Furniture.com often sent the wrong products, which meant paying for pickups, refunds and reordering, not to mention investments in supply chain management and customer service to keep buyers from leaving.

Aside from a botched IPO, free shipping and similar attempts to attract more business probably sealed the company's fate. Free shipping cost the company an average of \$220 per item, according to Michael Barach, formerly on the company's board of directors. This policy cost the company 22 cents on every dollar, a return rate from which it could never recover.

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—David Giometti, VP Vendor relations, Sears Roebuck, and Co.



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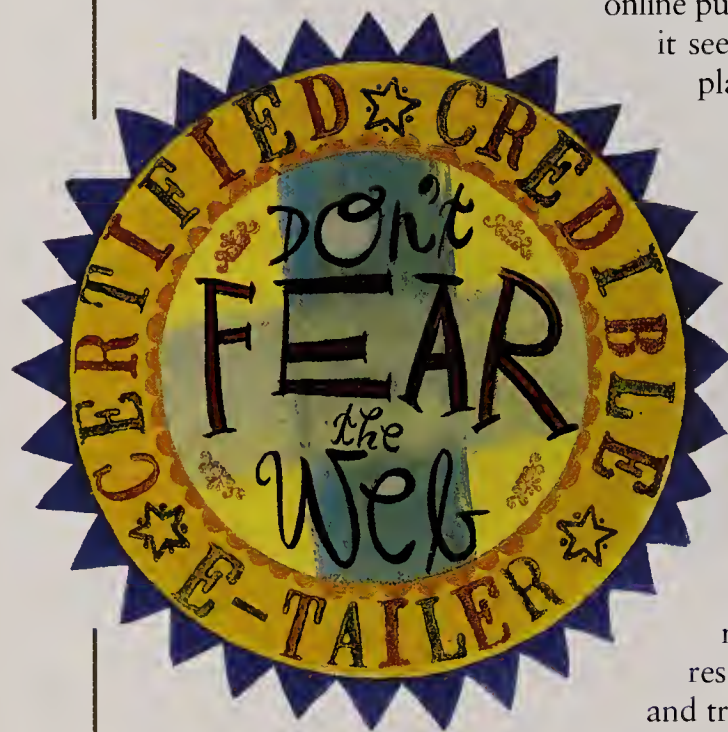
E - C O M M E R C E

E-Tail Watchdog

By Matthew Taylor

SO YOUR DAUGHTER hates the blouse you gave her, and the new Springsteen disc you bought yourself is defective. Problem? Not really. Simply head back to the store and return them. If you have any trouble getting an exchange or refund, just ask for the manager.

But what if you bought these goods online? OK, now there's a problem. So much of a problem, in fact, that Federal Trade Commission studies show most Internet users still steadfastly avoid making online purchases. Brick-and-mortar retailers, it seems, still eclipse the cybermarketplace when it comes to consumer confidence.



That could be changing, however. WebAssured.com is one of a growing crop of free websites aiming to take the scare out of shopping online. Geared toward holding online merchants accountable to their customers—and giving shoppers a viable outlet to vent their frustrations—the site serves as a watchdog to discourage e-tail malpractice. WebAssured has a rigorous screening process that researches companies' backgrounds and track records. If a company survives the strict screening—and pays a \$180 fee—it gains the WebAssured seal of approval. At press time

WebAssured had more than 8,000 member e-tailers. This vetting of companies gives consumers assurance that they are dealing with a reputable business. Labeling its technique "pressure through publicity," the online consumer protection service also provides global access to ratings of and complaints about thousands of e-commerce sites. The site contains a database with credibility information (consisting of a history of complaints and business track records) on nearly 250,000 companies.

WebAssured.com not only certifies companies, it also attempts to mediate more tangible problems—like how to return a defective CD bought online—and boasts a 95 percent success rate resolving complaints against member sites; a 79 percent rate against nonmember sites. Since its launch in 1995, WebAssured.com has grown to handle an average of a couple hundred complaints each month—via a user-friendly "complain" button. Moreover, the site offers a cash-back guarantee—backed by Lloyd's of London—for customers dissatisfied with the service of member companies.

Conversely, there is also a "praise" button for customers looking to reward any credible e-tailer. The Indianapolis-based company is not alone in its mission: BizRate.com, Safeshopping.org and Ithought.com have also jumped on the consumer e-confidence bandwagon.

I N T E G R A T I O N

Before You Leap

PLANNING TO ADOPT an integration tool for your large organization? Terence O'Donovan, director of technology for DataMirror in Toronto, an enterprise application integration platform provider, suggests considering these points first.

Scalability Replacing point-to-point interfaces with a tool becomes senseless if the tool can only easily manage a small percentage of those interfaces.

Performance The tool must have a high throughput of data.

Ease of Deployment The ability to change certain parameters (source name, target name and so on) is essential.

Centralized Administration Interfaces must be able to be administered automatically and from a central place.

Straight Through Processing/Zero Latency The ability to deliver target data as soon as possible after reading the source data is important for many applications.

Heterogeneous Sources To turn data into information, you must be able to join data from heterogeneous sources.

Security Support for various security standards is required. Good, hard-to-reverse standards at the moment include Secure Sockets Layer, IPSec and Pretty Good Privacy.

Partners For large enterprisewide projects, a company must have good partnerships with respectable systems integrators, with a base staff already trained in the product.

Training The better the training program the quicker the enterprise will realize its return on investment.

Support A good, tiered support function (offering up to 24/7 telephone support and a knowledge base) will help alleviate inevitable problems.

User Group An organized user base—to share experiences, good practices, tips and tricks—is invaluable in heightening the ROI of the project.

References Before investing in a tool, always check references from well-respected companies that have that tool in production.



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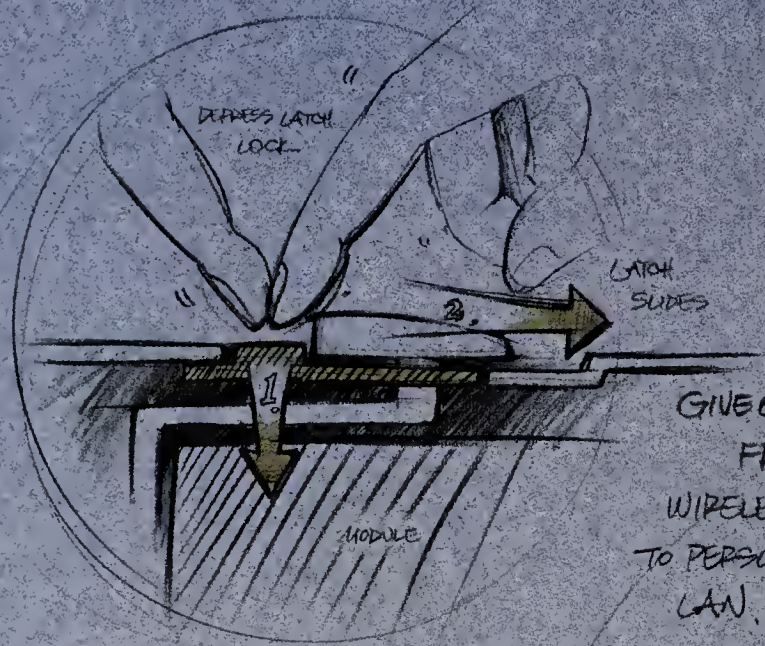
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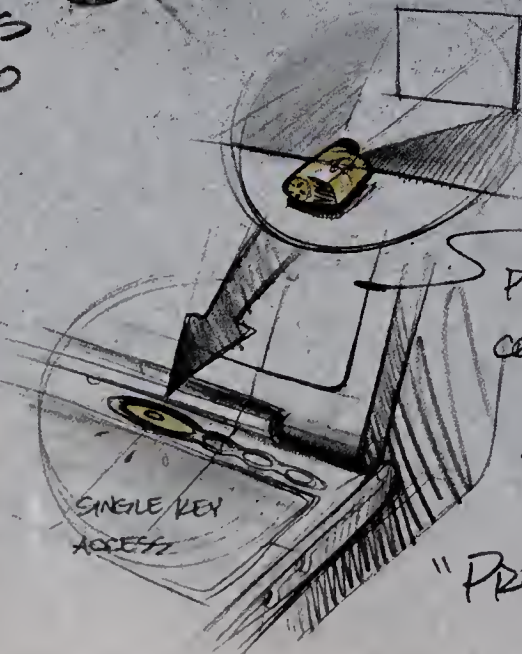
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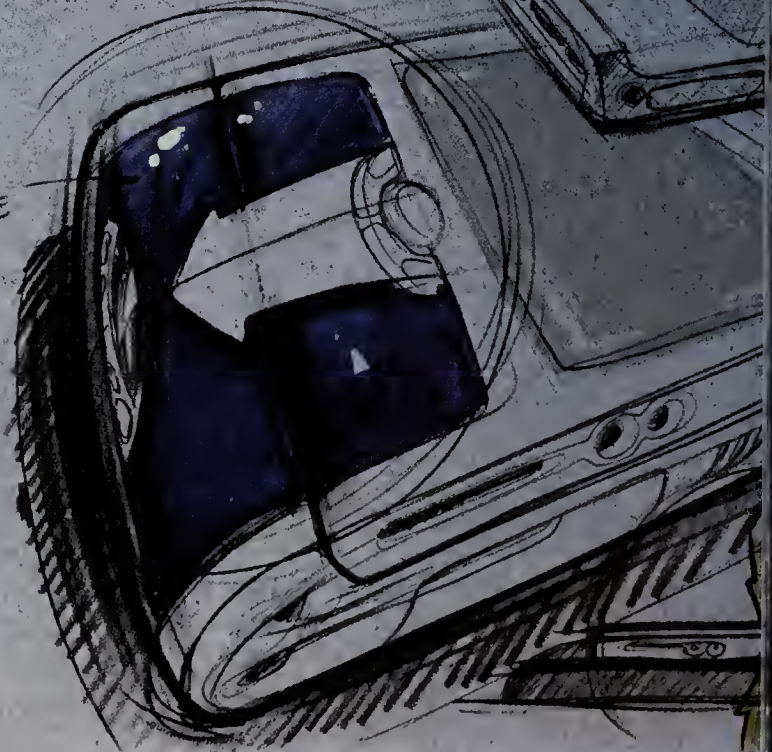
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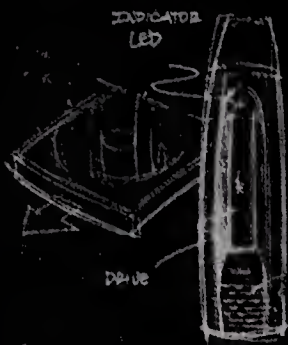


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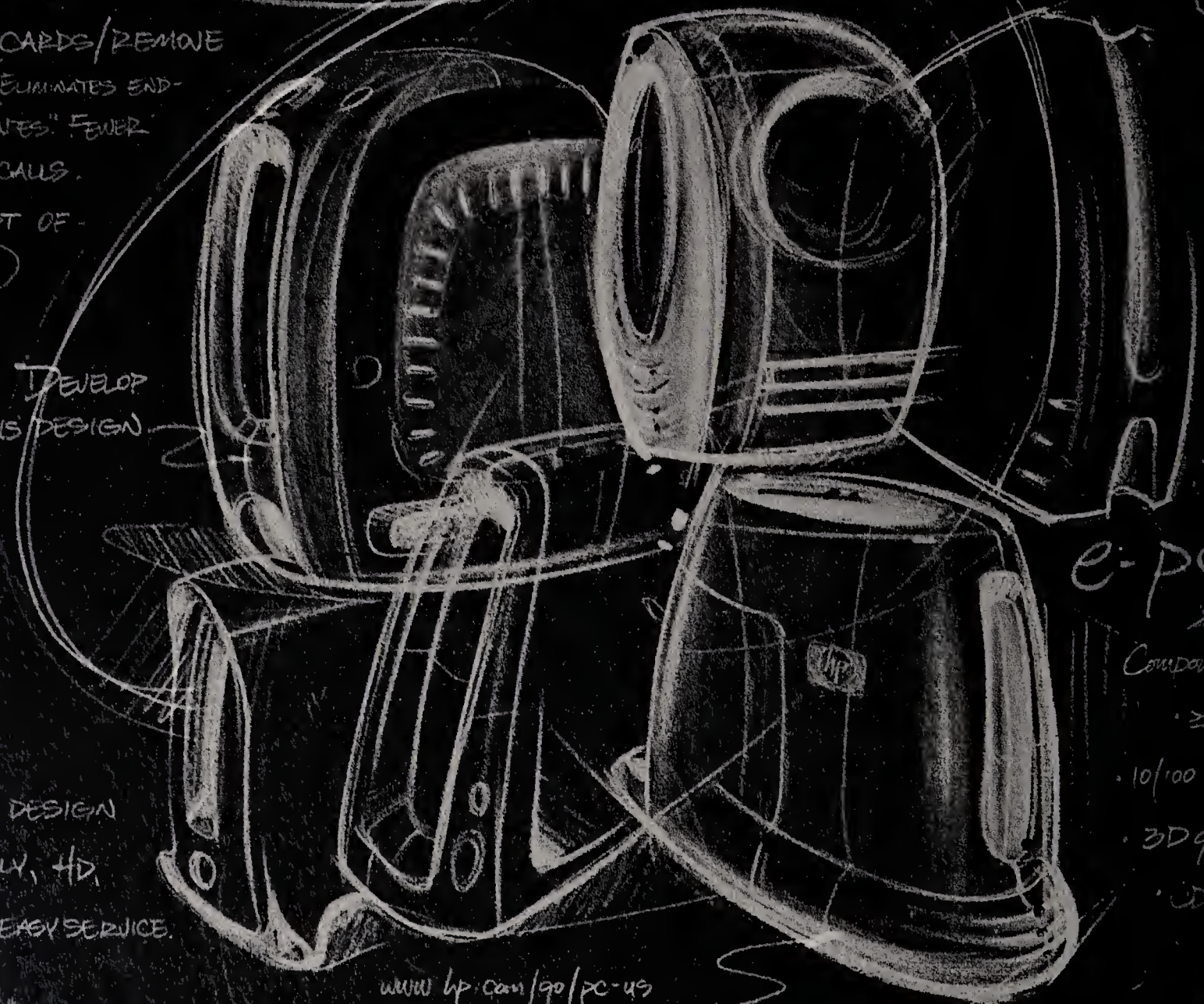
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Get Real with John Sviokla

Creating Value in the New Economy

Knowledge Pays

You need to redefine your notion of knowledge management for the digital age

FACE IT. Most knowledge management efforts are doomed to failure. They are internally focused, and they have fluffy measures of success. Often, the KM team counts inputs (“We have 20 people working on KM”) and activity (“We have 1,500 best practices codified”). You end up keeping very smart people busy producing lots of paperwork, and increasing overhead costs, for fuzzy benefits.

To succeed, CIOs must redefine knowledge management in terms that focus on what would make it most valuable to a business. That means having a deep knowledge of your company’s supply chain, from what your customers want to when they want it and which suppliers can quickly deliver high-quality parts to meet those wants. You can use this knowledge to focus on the critical goal of improving the return on capital for your company, your customers, suppliers and business partners. And by mastering KM—one of the squishiest IT concepts out there—you can help your company seize an enormous digital age opportunity.

Here’s why. While the 30-day payment cycle has been a convention for as long as anyone can remember, it’s obsolete in



the digital economy. The traditional principle governing the physical supply chain made a lot of sense when it took me three to five days to book an order, 15 days to ship it, and six days for the bank to clear the transaction. But the rules are no longer valid as business becomes more digitized. When I click “buy” on a webpage, everybody should get paid.

Understanding this shift and the importance of managing knowledge about your company is what will make capital flow in your favor. Business conditions have not yet caught up to this potential. Companies that have good knowledge of their supply chains can take advantage of this “float” to get cash from customers at new economy speed, while paying suppliers at old economy speed. This means you can keep inventory out of your own supply chain until the last second, moving all that inventory and capital volatility onto your buyers and suppliers’ balance sheets. In a volatile market, you have

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Don Knisley, Network Engineer, US Air Force

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Get Real with John Sviokla

more strategic flexibility because it's their capital that's bouncing up and down, not yours.

And this is where redefining knowledge management comes in. Why is KM such a difficult, executive problem? The primary issue is that knowledge itself cannot be directly measured, only its indirect effects can. That's because knowledge exists in the context of its use. For example, anyone interacting with a Dell premier webpage to order a product is only building a virtual version of a machine, which is available, can be built and is costed to the price negotiated with that individual's employer. The value is in the interaction of the customer with the knowledge. The correct solution to configuration has a profound impact on Dell's business process; an

Why is KM such a difficult, executive problem? The primary issue is that knowledge itself cannot be directly measured, only its indirect effects can.

error drops like a rock into a calm pond, with problems rippling costs through inventory, customer satisfaction and labor.

But if Dell provides its customers with the information necessary to make a purchase comfortably, giving them the sense—before they've even seen the product—that they understand what they are getting, why, and how they will use it, Dell has built customer satisfaction into the front end of the selling process through KM. Opening the box becomes an anticlimactic event because the customer is presatisfied. And the bad-configuration rock never drops.

How does this knowledge impact finances? It begins with the basic order to cash cycle. From 1989 to 1998, Dell's working capital moved from a positive 70 days to a negative 11 days. What enabled such a dramatic shift? Knowledge of every part of its value chain: configuration, customer demand, part availability, supplier quality.

Most important, Dell shared this knowledge with its suppliers and customers. When Dell passes knowledge that a first-time buyer generally won't pick a 21-inch monitor to its monitor suppliers, the suppliers can bump up production of smaller monitors based on the percentage of first-time computer buyers who visit Dell's website. That in turn means that Dell can collect cash faster and use fewer assets. The cash flows to Dell because the old 30-day payment cycle that it uses with its suppliers has not yet caught up to the best-of-breed production and delivery cycle. Dell's model enables the company to get paid for finished products, before they are actually built.

This is not only asset management and knowledge but using the "knowledge" of what customers want. Dell takes a customized order on the Web or by phone, and is able to hurl that

toward its suppliers, who make and assemble the parts. The complete knowledge Dell has about the desired computer, service needs, delivery statistics and customer specifics to all parties involved in the process turbocharges the supply chain.

W.W. Grainger, the \$4.5 billion industrial distributor, has this same kind of deep knowledge of the maintenance, repair and operations (MRO) space. If you want to find one of 5 million parts online, you can enlist a sophisticated search engine at Grainger's website. If this doesn't work, you can go to a service called FindMRO with specialized search tools, or you can submit a request online to ask Grainger to find it for you.

Don Bielinski, group president at Grainger, says the typical online Grainger order averages \$250. FindMRO orders average \$1,200, and 80 percent of the goods are shipped directly from the manufacturer to the end user, converting demand to cash much more quickly.

At Grainger, information about assets is substituting for the "hard assets" themselves.

But to make the information useful, there has

to be knowledge of how the information serves customers' needs, knowledge of the logistics and delivery, and knowledge of the suppliers. The company needs to know how each part works and how they fit together.

As CIO you need to focus your KM people on the goal of lowering asset intensity and improving the cash collection cycle. Focus on high-transaction, high-customer touch points: customer service, inside sales, accounts payable. These are the kinds of processes that have short cycle times. Geneticists study mayflies because they live only 24 hours. If they instead examined sea turtles (which can live 100 years), we'd still be waiting for the first study! Your KM efforts should focus on areas of your business where you can see the direction of the impact of changes rapidly, and across many transactions.

Have your company build a KM system for sales where you can support cross-selling and track common complaints. Put it in the service department where you can leverage the knowledge of your front-line workers to get returns down and dispute resolution shortened. Put it in support of your field sales force and stay the course. KM is a social process where people must change their behavior, and the more suppliers and customers are involved, the longer it takes.

Superior knowledge management frees companies to operate on fewer assets, collect their cash faster and have less volatility. The challenge is to make sure that the scope and the goal of the process is clear and focused. **CIO**

John Sviokla is vice chairman with DiamondCluster International, a Chicago-based e-business consultancy.



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Fine Print

What You Don't Know Can Hurt You

Intellectual Piracy

Are business method patents threatening your e-company?

BY BRETT DORNY

IN THE LAST couple of years, a new device has emerged on the legal scene to protect novel ways of conducting commerce. It's called the business method patent, and it typically covers some combination of software and business methodology, like innovative online ordering processes. When you get a business method patented, you stop others from using it for 20 years. And you can exploit it by licensing it out to others for a fee.

At first blush they may not sound so bad, but like pirates barricading sea lanes, these patents could block off avenues of profit that your company has been traveling for years. Meanwhile, companies are scrambling to obtain them to use as both defensive and offensive weapons. Because business method patents are generally tied to computer systems, it's crucial for CIOs to know where they come from, how they work and how to avoid getting tangled in their web. And as cruel as it sounds, the best defense against these new weapons may be deploying them yourself.

Business Methods Over Time

Business method patents involving computer software functions

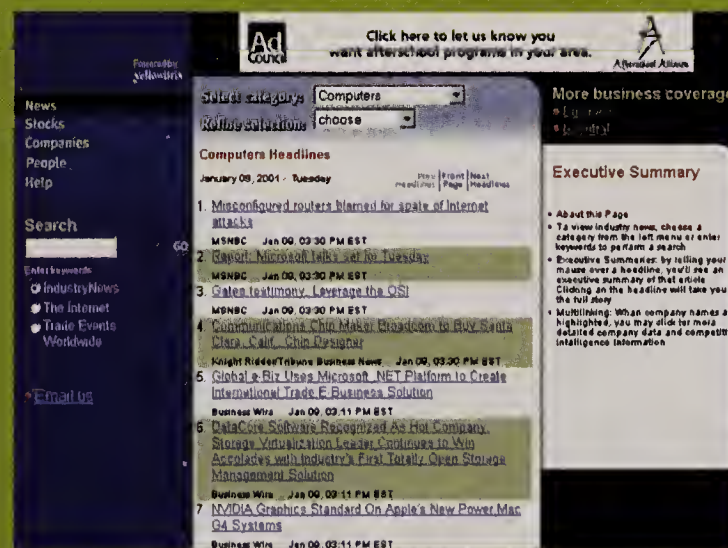


are a new development; they've been around only since the late-1990s, and they're a product of a long-standing quandary over software's place in the world of intellectual property law.

Initially, software as a written product that includes elements of expression was protected by copyright law. But software never fit neatly into this sphere because copyright law doesn't protect the functions that the programs perform. Meanwhile, software never fit neatly into patent law either. Patent law, which is designed to protect "inventions," is what you'd typically use to protect a product with functionality. But the term *inventions* refers to man-made creations, not the mere discovery of existing principles. Therefore, laws of nature, whether previously known or not, could not be patented because they were not created—and this is still true. This distinction has led to a laundry list of categories excluded from patent protection, including "methods of doing business" and "mathe-

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matical algorithms.” These two exclusions from patent law have often precluded patents for computer software.

The rationale for the method-of-doing-business exclusion is that business practices are not tangible machines or processes. However, in 1998 everything changed. The Court of Appeals for the Federal Circuit eliminated this exclusion with respect to computer software. In *State Street Bank & Trust Co. v. Signature Financial Group, Inc.*, the court upheld a patent for a method of calculating the net asset value of complex mutual funds. The court determined that patents had to be considered based on the Patent Act’s requirements of a “new

Determine whether your company has any patentable inventions. Often patents can be used as shields as well as swords.

and useful process, machine, manufacture...or any new and useful improvement thereof.” Because business-related software fell within the “new and useful process” requirement, it could be patented. This significant change in the interpretation of patent law opened the floodgates for business method patents. Combined with the exponential growth of e-businesses (which utilize computerized business methods), this new position on software greatly expanded the number of patent applications and patents on business methods.

As the flood has continued, business method patents have been catching headlines—from Priceline.com’s patent on an online reverse auction to Amazon.com’s patent on the “one-click process”—which has increased the controversy surrounding such patents. A major criticism is that the United States Patent and Trademark Office [USPTO] is issuing too many undeserved business method patents. Part of the USPTO’s challenge is that it lacks “prior art,” or known information, relating to this area. To obtain a patent, your computerized business process must be “new.” The Patent Office determines whether something is new by comparing it to known information, principally existing patents and publications. But when changes occur in the patent law, such as the Federal Circuit’s allowance of business method patents, it takes some time for the Patent Office to generate reliable information for judging whether something in that realm is truly new. This same challenge arose in the early 1980s when the Supreme Court held that computer software was patentable. To address the recent recurrence of this problem, the Patent Office created a new section for business-related patents this past March and has been hiring patent examiners with the knowledge and ability to judge whether business

methods are new and patents should be granted. Until the Patent Office is able to adjust, it’ll take litigation to challenge improperly granted patents.

Steps to Take

Given these tumultuous times, companies need to act carefully. There are several steps CIOs can take to help protect their company from competitors’ business process patents—and to protect their own novel processes.

Determine whether your company has any patentable inventions. Often patents can be used as shields as well as swords.

And though it sounds contradictory from a philosophical standpoint, if others are going to use them, maybe you should too. You’re less likely to get sued for patent infringement if you also hold patents related to the industry. Also, additional patents and patent applications give the Patent Office better resources for prior art. Thus, if you patent a particular process, you can more easily

prevent later related patents by others. Once you determine whether you have patentable inventions, start your process to obtain a patent.

Help your company take steps to avoid committing patent infringement. Each patent includes claims that define the invention. For a product or process to infringe on a patent, it must incorporate all of the patent’s claims. Your company should compare its processes to patents covering the same processes to determine whether they may be infringing. But be sure to seek the assistance of competent patent counsel in doing this review.

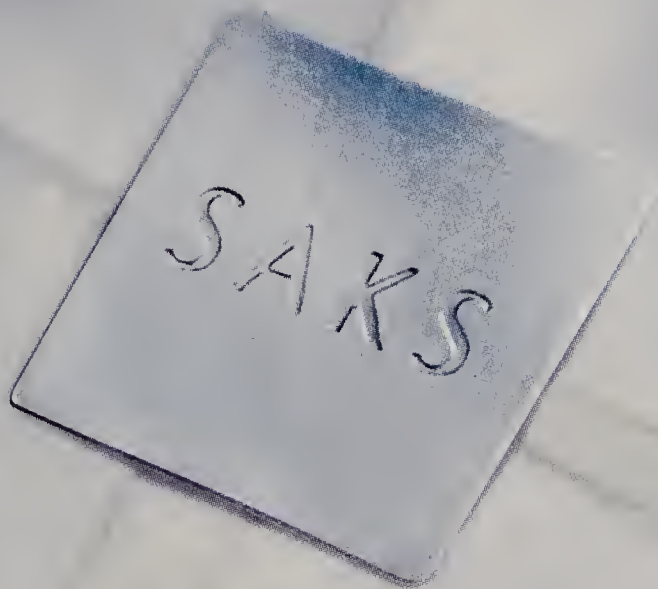
Consider whether to challenge the validity of known patents. The CIO may be in a position to assist in determining whether or not a patent should be challenged. A patent is invalid if the claimed process was known or used by others before the patent application was filed. You can challenge a patent in court, but it’s an expensive process. Fortunately, the Patent Office has a less expensive procedure, called reexamination, in which a company can submit documents challenging a patent’s validity. The Patent Office may then remove or modify the patent.

Rapid technological and cultural changes are transforming the way people conduct business. Patent law is adjusting to these changes—as evidenced by the business method patent—which unfortunately has produced some turmoil. In the meantime, the key is to keep on top of your industry and be prepared to fight this new weapon—or even to wield it yourself. **CIO**

Brett Dorny is an attorney with Mintz, Levin, Cohn, Ferris, Glovsky & Popeo PC in Boston. He specializes in intellectual property law. E-mail us about legal matters at fineprint@cio.com. Dorny can be reached at bndorny@mintz.com.



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HIRING, FIRING, INSPIRING

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Information Tools for Informed Management

Management software can help managers, but it can't replace them

BY DAVID T. GORDON

Edited by Management Editor Edward Prewitt. Got a great management story to tell? Send it to him at hotseat@cio.com.

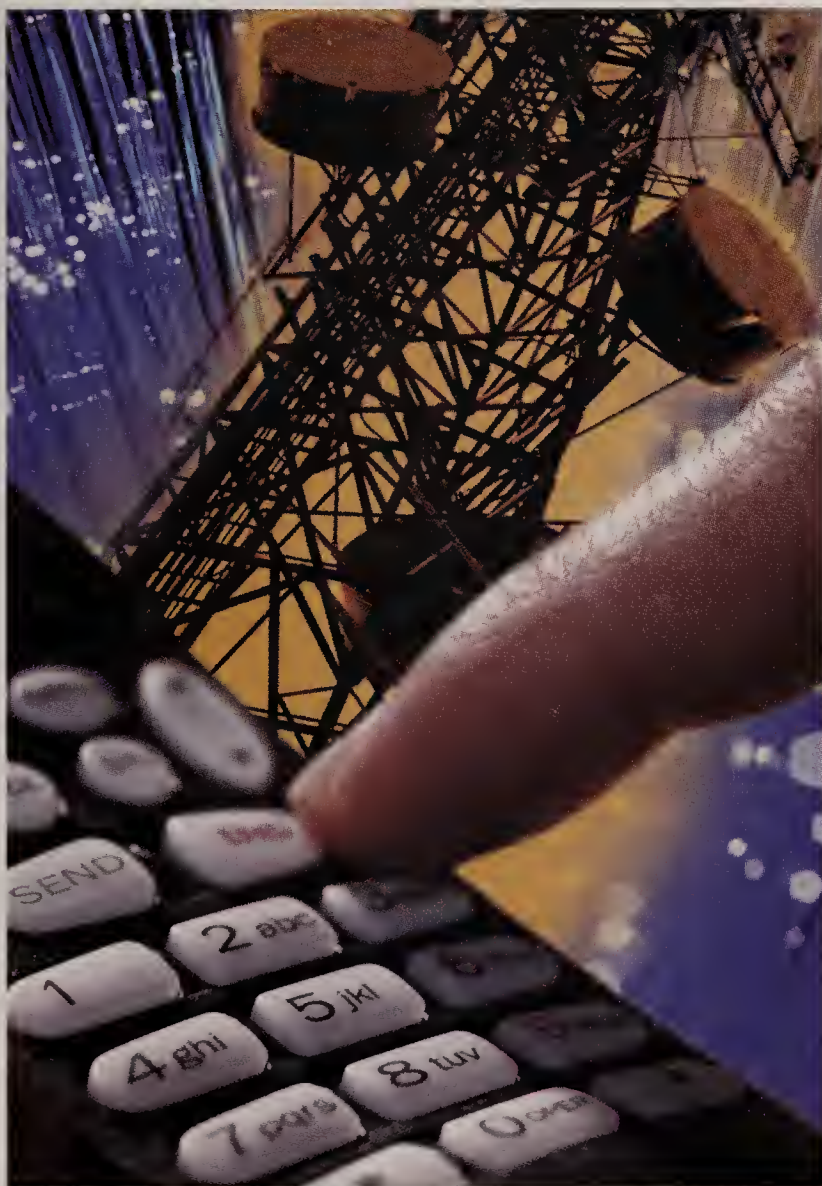
YOU MANAGE I.T. PEOPLE, BUT can you manage people with IT? That's what several recently developed software tools purport to do. Managers using these products allegedly can

optimize personnel assignments and availability, ensure that employees are meeting performance goals and make better business decisions. Skeptics will reply that management and em-

ployee motivation shouldn't be machined, lest people become "the tools of their tools," in the words of Henry David Thoreau. It's absolutely true that software cannot substitute for face-to-face

MEETING THE MESSAGING CHALLENGE

UNIFYING COMMUNICATIONS FOR E-BUSINESS



FOR TODAY'S ENTERPRISES, this is truly a new e-business millennium, where national and international boundaries are losing their meaning, and workers—through high-speed data connections—can stay in touch anytime, and from any location. But as much as road warriors and remote workers rely on broadband and wireless technologies to help them do their jobs, they are now asking IT to help them cope with their wily e-mail, voice mail, phone and fax configurations.

To unite their scattered workforces, many CIOs turn their messaging services over to network service providers (NSPs), which have the means to support large, disparate and fast-growing enterprises. And many of the NSPs are, in turn, trying to deliver what they call "unified messaging"—third-party solutions that allow their customers to send and receive e-mail, voice mail and fax messages from any communications device, anywhere in the world.

Road warriors are especially keen on unified messaging (UM) solutions.

Continued on page S2

UNISYS

Continued from previous page

The Boston-based Yankee Group reported that in 1999, 24 percent of wireless subscribers said they'd like the option of having their e-mail read to them over the phone, and 35 percent wanted consolidated, single-number telephone service. And road warriors called for UM in the greatest numbers: 70 percent of those who spend six days or more traveling each month ask for UM functionality, according to the same report.

Drew Kraus, an analyst with San Jose, Calif.-based Dataquest, part of the GartnerGroup, agrees with these findings. "Unified messaging has the greatest appeal for road warriors," he says. "Your sales force, field service people and traveling executives need access to all kinds of information, and they want to access that data through a single interface, whether it is on a notebook PC in their hotel room, or on a wireless phone at the airport."

LONG-TERM MESSAGING NEEDS

Analysts draw stark distinctions between the different UM solutions that NSPs offer. To avoid making the wrong choice, they say, IT decision-makers should first look at their organizations' long-term overall messaging needs. "You have to start by asking yourself, simply, 'Do I need it?'" explains Kraus.

By balancing per-user costs against projected gains in productivity and promised savings, CIOs can choose between two kinds of UM offerings: those that are effectively standalone solutions, or those that permit incremental change.

Some vendors' UM solutions insist on the wholesale replacement of legacy voice mail and e-mail messaging systems. But this rigid, all-or-nothing option can force IT departments to hold off on UM until their voice mail systems are completely obsolete.

Standalone solutions can also erode UM's potential for cost reduction and increased efficiency. "If a vendor insists that clients use

can use a [UM] interface that looks like your current interface, your users are going to adopt it more readily."

Universal Messaging from Unisys also accommodates divergent worker skill levels within an organization. Its modular architecture allows companies to introduce different levels of service to users with different levels of sophistication.

With *Universal Messaging*, users



their e-mail and hardware exclusively, then UM can become a costly proposition," says Larry Srader, a vice president at Unisys Corp., an e-business technology company based in Blue Bell, Pa., that builds large-scale messaging systems for NSPs. Unisys' own UM solution, *Universal Messaging*, consists of bundled feature packages, or modules, that can be tailored to the needs of different groups of subscribers.

Unisys' *Universal Messaging* adapts well to existing communications infrastructures and interfaces. "Users are more likely to embrace gradual steps toward UM functionality," says Megan Gurley, an analyst at the Yankee Group. "If you

and administrators can organize messages and add, modify and delete user accounts, all through one Web interface.

In addition, CIOs can use *Universal Messaging's* modular, incremental approach to UM to target only those individuals or user groups that require improved messaging functionality. As one report from GartnerGroup, Stamford, Conn., puts it: "Even if there is no felt need in the enterprise as a whole, a given department (for example, sales) or a single user (for example, the president) may have a disproportionately high requirement for unified messaging."

Continued on page S4

Unisys Reduces the Risks of UM Implementation

Even as they ask for more messaging features, users are not willing to suffer any failures in the performance and stability of their current systems. GartnerGroup says that users already expect 95 percent of their e-mail and voice mail messages to be delivered within 15 minutes worldwide, both within and between enterprises. Gartner also rates reliability among its most important criteria for unified messaging (UM) solutions. Today's voice mail systems, the research firm says, can achieve near-perfect reliability through redundant CPU and file systems, redundant power supplies, hot-plug cards (which can be replaced while a system stays online), plus online maintenance and port test diagnostic utilities that ensure the quality and integrity of every line.

E-businesses are banking on UM solutions that can work well with today's voice mail networks. "Your [UM] system is going to be with you for a number of years," notes Drew Kraus, an analyst with Gartner's Dataquest organization, "and it will have to evolve along with your communications strategy."

E-mail server software can also make trouble for new UM set-ups. Software that must support UM functions for voice mail servers, directory services and a common message store can threaten enterprises by creating multiple points of failure. In addition to system availability issues, deployment of UM systems raises security, scalability, manageability, interoperability and networking concerns because often these customized solutions require the seamless integration of multiple interfaces, hardware platforms and operating systems.

PROVEN COMMUNICATIONS PLATFORM

Unisys has greatly reduced these risks of deployment by building *Universal Messaging* on Unisys' proven and robust Communication Application Platform (CAP). Of the over 90 million voice mailboxes currently supported, the vast majority are consumer subscribers; howev-

er, Unisys anticipates that more and more large enterprises will eventually take advantage of their robust UM solution by contracting for it through local service providers. Unisys provides over 100 of the world's telcos (including nine of the 10 largest) with highly reliable voice/fax messaging systems based on the CAP. For example, one European customer reported zero unplanned downtime during the past 12 months. Other large Unisys customers recorded less than an hour of downtime in the past year. In addition to a highly reliable and scalable messaging platform, Unisys delivers world-class systems integration services and support to ensure that every deployment exceeds customer expectations.

THE POWER OF UNIVERSAL MESSAGING

Universal Messaging's fully customizable Web interface gives users access to any POP3 or IMAP4 standard-compliant e-mail server, while its powerful voice servers deliver steady dial-tone service to voice mail users. Users can access and generate e-mails, faxes and voice messages all from a single communication device interface.

Also, *Universal Messaging* is virtually device-independent. Subscribers can use their telephones to direct faxes and e-mail messages to printers for hardcopy output. They can also use phones to access information about an e-mail message, such as date, time, subject and sender identity. And with the system's text-to-speech capability, *Universal Messaging* can read e-mail messages to users over the phone. *Universal Messaging* also supports WAP, allowing a user to manage e-mail messages from a mobile phone with a mini-browser. However, Yankee Group analyst Megan Gurley believes that users will continue to use their PCs as often as their phones to check messages. "And PDA usage will increase, too," she says, "as more people add wireless modems and multi-modal access devices to their portable devices."

Companies must gauge their growth potentials when choosing a UM solution through their NSP. Fast growers, global organizations and buyout candidates can quickly exhaust small-scale UM systems.

Continued from page S2

REALITY CHECK: SCALABILITY

Companies must gauge their growth potentials when choosing a UM solution through their NSP. Fast growers, global organizations and buyout candidates can quickly exhaust small-scale UM systems. And not all solutions can provide the high levels of security and control required by large enterprises. "In many cases, the issue is whether an [NSP] can get multiple services working simultaneously and in sync," Dataquest's Kraus says. "And that may take a service that is used to working with larger systems." He also notes that many providers can only point to one or two large-scale implementations, "but most have been smaller."

With carrier-class scale services, companies can protect their legacy messaging systems, while expanding services for their mobile and remote workers. Unisys bases its *Universal Messaging* solution on the company's *Voice/Fax Messaging* application, which has performed reliably in many environments with more than 10 million mailboxes. In fact, over 100 NSPs in 40 countries are using the *Voice/Fax Messaging* solution.

Unisys has heavily invested in R&D to ensure that the *Universal Messaging* solution scales to the same levels of support it achieved with *Voice/Fax*

Messaging. Indeed, according to Unisys' Srader, "we have already shown our ability to scale our services to serve global customers with millions of mailboxes," he says. "Now, through *Universal Messaging*, we can do even more for them at the same level."

AN OPEN SOLUTION FOR AN OPEN WORLD

Universal Messaging supports a slew of wireless and Internet-related standards, such as POP3, ATM, IMAP4, TCIP, VPIM and LDAP. "Such broad support is becoming increasingly important for e-businesses," says Dennis Perkinson, *Universal Messaging* program manager at Unisys. "The bottom line is, the more your UM solution can support these protocols, the less likely it is that you'll have to throw out your current systems."

By putting support for open standards at the heart of its UM product, Srader says, "we've built an environment within the IP infrastructure that we can customize to our clients' legacy systems." *Universal Messaging's* open architecture allows for independent growth and scalability of separate message stores; users experience minimal impact on latency speed, synchronicity and functionality.

Universal Messaging also seamlessly integrates Unisys' *Voice/Fax Messaging* system with any POP3/IMAP4 standard-

compliant e-mail servers and any SAPI-compliant text-to-speech engines, making it the most flexible and scalable UM solution currently available worldwide today. *Universal Messaging* not only offers a complete set of industry-standard UM features, it also provides compatibility with Wireless Application Protocol (WAP)-enabled mini-browser phones and other next-generation technologies.

ANSWERING THE CALL

By supporting new protocols and easing the growing pains of expanding enterprises, NSPs that offer Unisys' *Universal Messaging* are answering IT's call for realistic and rapidly deployable UM solutions. Road warriors and remote workers can get new services ahead of their office-bound counterparts, and IT can reduce messaging administration costs and create better connections between new and old systems—an essential asset for seamless messaging between any two work locations. And *Universal Messaging's* modular design easily joins with legacy voice mail networks, so enterprises can embrace change as quickly as it comes.



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CIO MAGAZINE

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interaction, but in a market where computing power is cheap and human capital is dear, using IT to optimize your workforce is only sensible.

Besides, automating business practices is what IT is all about. Yet CIOs are often reluctant to practice what they preach, says Chuck Tatham, vice president of marketing for Changepoint, a Richmond Hill, Canada, company that makes business process automation software for corporate IT departments and IT services companies. "IT departments are like the shoemaker's children. They've done a good job of automating others, but not always their own operations," he says.

Juana Clark, director of applications management at Baltimore Gas and Electric, bought Changepoint software to help manage her IT operation. In the initial rollout this past June, she implemented time and expense reporting and project management functions. In January, part two of the rollout involved converting work requests and internal billing processes to Changepoint's system, which integrates all of the standard IT service delivery functions. What sold Clark on Changepoint was its design specifically for IT departments. In addition, a Web-based intranet portal makes it easy for her and the entire IT group to get an at-a-glance read on what everyone is working on. "I need visibility into everything my people are doing, even if they're not doing it for me," says Clark. "What projects are they working on? Where are they spending time?" Changepoint has been well received at

Baltimore Gas and Electric, she says—not only by her but also by her staff. By accessing and reporting in the familiar icon-based interface, IT workers at the utility say they feel more aware of what's going on and more connected to organizational goals.

Binding employee activity

els enter into the system their individual plans for meeting the goals. Performaworks CEO Jim Perry, who uses the product to manage his own company, explains its usefulness this way: "Performaworks gives executives and line managers preemptive intelligence around their human assets so that they can evaluate at

really going to keep the business moving forward," says Senior Vice President of Operations David Lloyd. In a fast-paced e-business environment, getting people focused on short- to midterm goals that are aligned with long-term objectives is difficult but essential, he says. Performaworks achieves that by providing regular notification to employees and managers alike of milestones being achieved or missed and goals changing. "It makes you pay attention to what people are doing and ask whether they are engaged in meaningful tasks," Lloyd says. "In so many companies, people set goals and objectives, stick 'em in the drawer and forget about them. Performaworks doesn't let you do that. The biggest surprise of all is that at the end of the quarter, there are no surprises."

The communication of goals that Performaworks engenders isn't one way. Once executives and managers convey a structured list of benchmarks and expectations down the organizational chain, employees have regular opportunities to give feedback on their own needs and concerns, indicating what additional resources or education may be needed to meet corporate objectives. The system incorporates employee performance and feedback results so that a manager and an employee can establish a consensus on what actions and professional goals should be pursued. A journal function also gives employees a chance to note what did or didn't work especially well on any project. Managers can incorporate all of this information to

AT A GLANCE

Management Software Vendors

Changepoint—www.changepoint.com,
Richmond Hill, Canada

Business process automation for IT services organizations

Performaworks—www.performaworks.com, Raleigh, N.C.
Performance management tools placing metrics around
individual and corporate performance

Expert Choice—www.expertchoice.com, Pittsburgh
Decision support software incorporating both tangible and
intangible information

with organizational goals is the purpose of another management app developed by Performaworks. Founded in 1997 in Raleigh, N.C., by a team of industrial psychologists, management executives and software developers, Performaworks offers a suite of Web-based performance management tools that quantify the alignment of employee activities with managerial directives. Performaworks software first prompts executives to write down organizational goals—a valuable exercise in itself—and then communicates these throughout the hierarchy. Employees at all lev-

els enter into the system their individual plans for meeting the goals. And they can move proactively to correct their course, rather than finding out six or nine months down the line that they've veered off."

ViaLink, a Dallas-based provider of e-commerce functions for food, retail, service and hospitality clients, began using Performaworks's eWorkbench product in March 2000 to manage and monitor goal-setting and achievements of its 124 employees. "EWorkbench provides us with a magnetic north—to keep focus on things that are

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generate graphically rich reports that give a clear sense of how their objectives are being carried throughout their department.

This ongoing communication process takes some of the politics out of managing and being managed, Lloyd says, and boosts the usefulness of employee evaluations. "People want to do a good job. They want to know what they're expected to accomplish, and they appreciate help and guidance in those pursuits," he says. "EWorkbench makes it very clear: Here's what you need to do to be successful, here's what tasks or goals are most important. That makes for a much more meaningful and objective discussion when you talk about performance and compensation. It drives a lot of the subjectivity out of it."

But beware: While IT tools have their uses in management, they're not a substitute for managers. Removing subjectivity is one thing, removing humanity is another, says Bonnie A. Nardi, a design anthropologist for Agilent Technologies in Palo Alto, Calif., who has studied office interactions. "In terms of communicating goals and priorities, you can never do too much. And any system that helps you do that is probably a good thing." Yet a lot of work gets done through informal, water-cooler conversations that can't easily be codified on a computer screen, says Nardi, who coauthored *Information Ecologies: Using Technology with Heart* (MIT Press, 1999). "It's important that people feel connected and accountable to each other, that they still have simple, informal interactions.

When you introduce automated systems, relationships are changed, and not always in a positive way. You lose informal communication. So a diverse approach is best, using both electronic tools and human-to-human contact."

A third IT tool for managing, Expert Choice 2000, was designed to take human subjectiv-

only the financial side of a problem but also value-based opinion aspects by asking executives to assign weights to goals and objectives. (To avoid gamesmanship, participants can use radio frequency keypads when scoring their positions.) By graphically illustrating the interplay among different goals and opinions, the software points the

our IT portfolio model becomes a living representation of our IT organization."

Stouffer finds Expert Choice particularly valuable for IT projects. She notes that, especially in large organizations, executives often fail to communicate priorities to IT project managers. That can leave project managers guessing on which IT invest-

"EWorkbench provides us with a magnetic north—to keep focus on things that are really going to keep the business moving forward. It makes you ask whether people are engaged in meaningful tasks."

—DAVID LLOYD, SENIOR VICE PRESIDENT
OF OPERATIONS, VIALINK

ity into account. This decision-making tool enables managerial teams to make considered, deliberate judgments about complex situations that comprise both quantitative and qualitative components. Expert Choice 2000 is based on the Analytic Hierarchy Process (AHP) decision-making methodology developed by Thomas Saaty in the 1970s at the Wharton Business School at the University of Pennsylvania. AHP has slowly gained favor in corporate and government circles during the past three decades, leading Saaty to form Expert Choice, a Pittsburgh-based software company. The latest version of the software assists executives in developing a hierarchical tree of goals, priorities, tradeoffs and alternatives. The model integrates not

way toward a decision, even listing priorities in order of importance. Executives can then vote on courses of action.

Debra Stouffer, deputy CIO for IT reform at the U.S. Department of Housing and Urban Development, uses Expert Choice for the agency's IT capital planning and investment. "The software actually forces project managers to make the effort to clarify the value of their projects—because if they can't, they will not get money," she says. "We save valuable time by reviewing the projects in a portfolio framework and by terminating useless projects before they drain valuable resources. We have better control over our projects by managing them continuously rather than periodically. And we don't have to start from scratch every year because

ments are most important to the organization—a potentially costly gamble. Expert Choice contains a feedback mechanism that allows project managers to assess the relative value of their work versus company goals. Their feedback, once entered into the decision-making model, could potentially change the entire equation.

Far from replacing human judgment with computer processing, tools like Expert Choice, Changepoint and the Performa-works suite can improve the way people work. These IT tools for management do the legwork required for good organizational planning. And after all, what could be more natural than using IT for IT workers?

David T. Gordon is a freelance writer in Cambridge, Mass.

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HINDSIGHT | JIM NOBLE

The Crossover CIO

JIM NOBLE, CIO AND SENIOR VICE PRESIDENT of Warner Music Group in New York City, clearly enjoys variety. The native Scot's career has spanned a striking range of industries. Before joining Warner in April 2000, he was, variously, global head of IT strategy at General Motors, chief of IT consulting for management consultancy CAP Gemini, and CIO for the engineers Trafalgar House and for General Electric (U.K.). Early experience as a military jet test pilot and a professional race car driver helped form Noble's IT motto: "fast and flexible."

CIO: What advantages does a CIO have moving across industries?

Noble: In the honeymoon period, a newcomer can ask seemingly naive questions and can suggest out-of-the-box approaches to great effect—what they would call in Scotland "playing the daft laddie." The ability to challenge accepted wisdom, particularly with IT development projects that are not well-conceived, is a very effective tool.

What drawbacks come with changing industries?

You always encounter people who say, "We tried that before, but it just doesn't work in this business." The challenge is to earn confidence that you're going to succeed in implement-

ing your vision. A CIO needs to get connected with everyone so he's not just thought of as the new sheriff in town.

So how do you connect with everyone in a new company?

The old methods work best. Not memos and e-mails, but one-on-one—and whenever possible, outside normal business hours. If you have a significant number of people to work with, calling a town hall meeting can help people get the right attitudes.

You've written that a CIO should be a benevolent dictator.

It's a good compromise between two [management] styles. If you start out as the benevolent dictator, you can become more collegial or more controlling as the situation requires. In the auto industry, a controlling style is expected. People see a collegial style as weakness. In music, the opposite is true.

Are people the most important element in an IT organization?

That depends. A lot of companies try to build a comprehensive team with the best people they can, then discover they cannot adapt to changing busi-

ness conditions. I suggest building a small team of senior, high-caliber people who are generalists and leverage third parties as much as possible. That allows you to form and dissolve relationships according to your immediate needs.

How does the relationship to other executives change as you change industries?

In any industry, the CIO has to engage the hearts and minds of the executive team. But CIOs are ultimately judged by execution. [Companies] can find great thinkers anywhere; it's really hard to find the people who can get stuff done.

—David T. Gordon



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IT Project Planning: Adult Supervision Required

Failing to quantify the payback of IT projects can put them—and your career—at risk

WHAT IS IT ABOUT TECHNOLOGY that can cause smart people to make dumb decisions? I see companies investing a lot of money on IT initiatives that don't meet the minimum daily requirement for common sense. It's not that the ideas are bad—in fact, most of them aren't. But they are not well thought out. They are baby ideas in need of adult supervision. It sounds simplistic, but if you can get a senior business executive to commit to delivering specific results on an IT project, you will have done most of the heavy lifting necessary to ensure success.

A few years ago I reviewed an IT strategic plan for a large retail company where an IT investment of \$200 million was recommended over a five-year period. This plan was generated by a very large, very well-known IT consulting company at the request of the CIO. *Nowhere* in the document was there any discussion of the business payback for this investment.

Another instance occurred at a large media company. At my client's request, I intervened on a strategy project in which the approach was not going to result in specific value commitments. When I raised my concerns with the consultant (from another very large, very well-known IT consulting company), I was informed that there was *no way* to calculate ROI for IT investments. Since he was missing the point, we spent the next two hours on "Business 101" and revised the approach accordingly. The sponsoring general manager specified value commitments and the project received \$30 million in funding.

Both projects got funded, but only the second was fully implemented. The real difference in the two examples, however, lies in the quality of the up-front planning. With the first, unsuccessful project, a significant amount of work had to be spent

redoing the financials. By the time this foundation work was complete, the senior executives were suffering from hangovers caused by a series of bad projects (usually the result of lots of expenses and no discernable business benefit). In the end, they decided not to fund the rest of the project. In the second, successful example, the work focused on supporting front-line operations, with clear benefits to the media company. The sponsoring general manager made sure the organization stuck to the plan so that it could implement the business change and realize the benefits.

Why is it so important to quantify the payback of IT projects? Because general managers will truly focus only on those things that will make them money. No reasonable general manager is going to champion an IT project that's poorly defined or not worth doing, especially if it runs into trouble. When times get tough—and there are always tough times on major projects—it's all too easy for

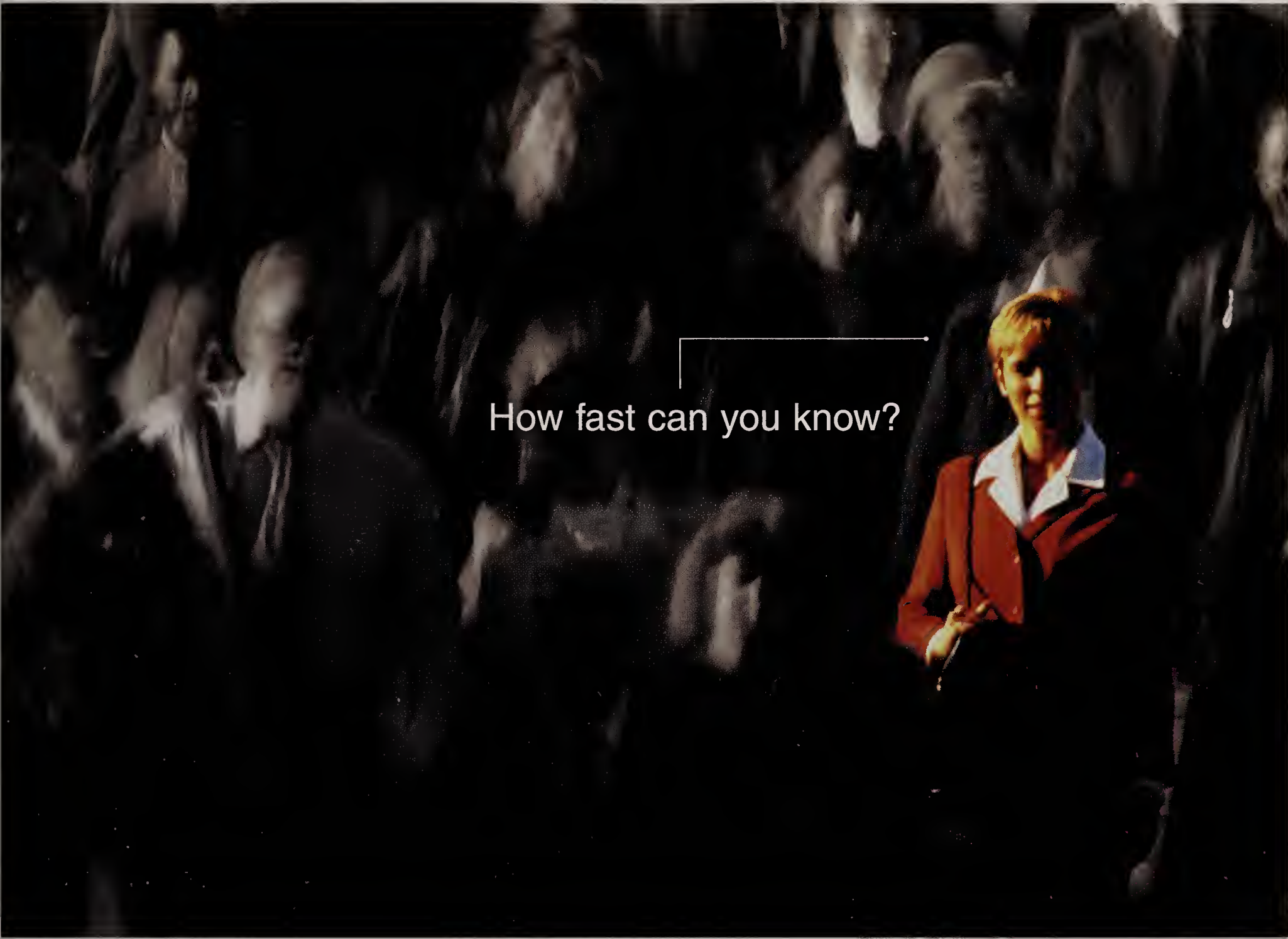
executives to ax the initiatives where the project rationale is not broadly understood, as with the retailer example I mentioned.

It's a mystery to me why seasoned business executives follow the "build it and they will come" philosophy of technology investing. Many people believe the rapid pace of business dictates this fire-ready-aim behavior. After one of my talks to a CIO professional association on this subject, yet another consultant from another major IT consultancy let me know that IT investment justification disciplines don't have any relevance in the dotcom world. Tell this to the VCs holding the bad dotcom paper.

Our current faith in the devil we don't know has given us permission to hold technology above the long-established business codes of conduct that require investment justification and accountability for results. Many CIOs give lip service to



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these disciplines. Although most of you, in my experience, prepare formal project justifications, very few of the justifications include commitments by general managers for explicit results within a specified time frame. In fact, in most organizations, the IT department prepares the justification, which leads to the project being considered complete when the software is implemented rather than when the benefits have been realized. As a result, the justification process becomes form over substance—simply a box

service affects peak time throughput and will increase sales (provided that there is excess demand for the product and customers are turned off by long lines at the counter or drive-thru). IT improvements that increase speed of service are easier to commit to and measure than the resulting increase in sales.

■ **Be unreasonable.** Effective leaders ask their organizations to deliver what is believed to be impossible. When I was a practicing CFO, I once asked my controller to prove that his request for a new financial

rectly, the average dining check increases, which has a huge effect over millions of transactions.

■ **Evaluate the portfolio.** Create specific measures for IT projects, but allow some room for R&D, infrastructure and risky investments. Annually or more often, examine the impact over the entire capital budget. As with your personal financial portfolio, select a mix of sure things and fliers and evaluate your decision process based on the overall result.

If you are still wondering whether all this applies to you, ask yourself which part of ROI your organization manages most closely: the numerator (benefit) or the denominator (costs—mostly IT). If your company spends most of its time discussing the cost side of the equation, you don't have good investment management processes in place and IT is probably viewed as an expense to be minimized rather than an investment to be optimized. Without measurable results, IT will be considered a necessary evil rather than a strategic management lever and will be subjected to the tyranny of subjective performance assessments.

In contrast, the road to specific business commitments for IT projects leads to a hundred valuable discussions about the concept, the work required, the skills necessary, the barriers, the accountabilities and the measurements. If you haven't traveled down that path, then as a first step, pick two projects—a dog and a star—and work with the sponsoring business executives to define and commit to measurable business impact. My guess is that your dog will be redefined, reduced or eliminated, while the star will be recognized for the jewel that it is and be better funded and championed. **CIO**

Susan H. Cramm, formerly vice president and CIO of information technology at Taco Bell and executive vice president and CFO at Chevys, a Taco Bell subsidiary, is president of Value-dance, an executive coaching company based in San Clemente, Calif.



PHOTO BY CHRIS CORSMEIER

Why is it so important to quantify the payback of IT projects? Because general managers will truly focus only on those things that will make them money.

to check off on the way to obtaining funding. In letting general managers get away with not committing to projects, CIOs are putting their projects and careers at risk and ensuring that IT is kept in the back office—with all the other administrative functions.

If you want a seat at the boardroom table, here's what you need to do:

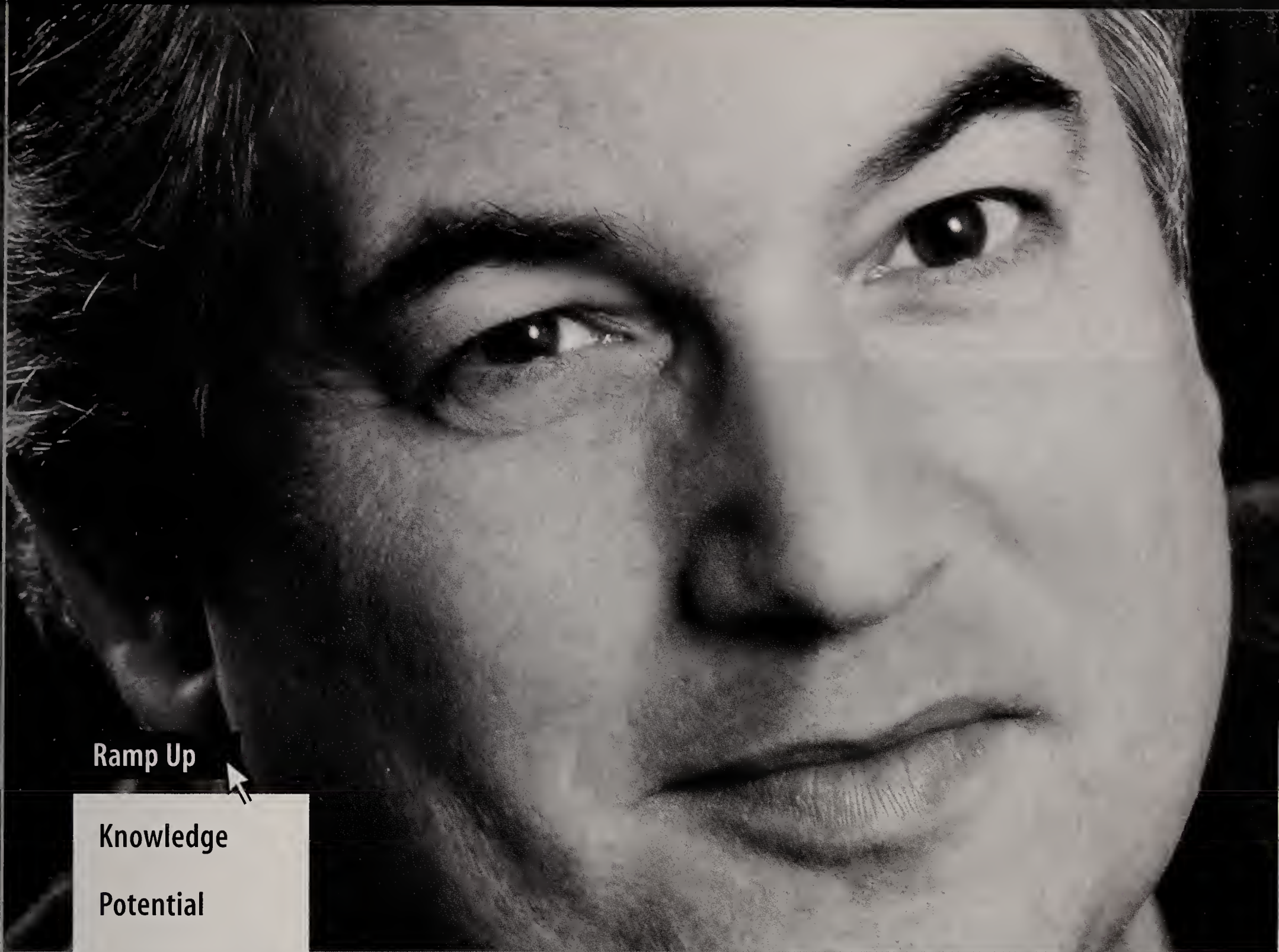
■ **Define the rules.** Make it clear that executives must demonstrate some type of business result for their IT investments. Make sure everybody knows that a big somebody will be watching. A CFO of a major entertainment company not only reviews the business justifications when project plans are being drawn up but also remembers these commitments when budgets are reviewed.

■ **Use operational measures.** It's admittedly difficult to draw a straight line between most investments and the financial impact. Fortunately, every business has operational measures such as customer service, cycle time and product quality that, over time, will result in financial impact. These measures can be identified by examining the underlying drivers of the financial results. For example, for a restaurant chain, speedier

system could pay back within a couple of years. I thought I had killed the request. Imagine my surprise when he came back with a justification based on tax savings created by the system's more sophisticated fixed asset processing. Even boring replacement projects can be made exciting if the team is challenged appropriately.

■ **Stage the funding.** Most investments are a guess about the future. By staggering the funding in multiple stages, you motivate people to continuously prove the concept to gain more funding. Conducting pilot and proof-of-concept projects are the best ways to do technology projects, because they allow us to refine our knowledge and understand the risks and true scope.

■ **Invest in the front line.** This is where your company interacts with its customers and channel partners, and where small changes can lead to big dollars, because you can influence thousands of transactions, decisions and behaviors. For example, in the restaurant business, investing in IT at the store level is the only game in town. If you can save labor hours, millions fall to the bottom line. When you define a promotion cor-



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Can I.T. Save A&P?



The granddaddy of grocery chains is betting \$250 million that the right technology—and the right people to run it—will revive its wilting profits

BY SUSANNAH PATTON

AT THE TURN OF THE CENTURY, DAPPLED GRAY HORSES pulled A&P's red wagons through the streets of lower Manhattan in a marketing scheme designed to lure shoppers to the store. Decades later one of those shiny red wagons adorns the lobby of the grocery chain's headquarters in Montvale, N.J.—a nod to the supermarket company's glory days, but also a glaring reminder of its image as an old-fashioned outfit that has fallen dangerously behind its competitors. While its biggest rivals are benefiting from years of investments in IT and other areas, A&P now faces a life or death test.

The 142-year-old grocer, known officially as the Great Atlantic & Pacific Tea Co., has put its future on the line with a four-year, \$250 million systems and supply chain overhaul that will ultimately replace close to 95 percent of its current applications. Saddled with an antiquated IT infrastructure and facing threats from new grocery entrants such as Wal-Mart Stores, discount club stores and convenience stores, A&P had little choice but to take an ax

Reader ROI

- Learn how a company in trouble is making all the right IT moves—and may still lose
- Get inside the high-stakes process of choosing key vendors
- Understand unique supply chain challenges facing supermarkets



**CIO Nicholas L. Ioli Jr. (left)
and CEO Christian Haub
must face down Wall Street
skeptics in their bid to freshen
up A&P's products and profits.**

to its legacy systems and outdated business practices.

Now, the company faces an uphill battle—and a tide of skepticism from Wall Street investors—as it prepares to implement an ERP-type system it hopes will transform A&P from old-time grocer to a high-tech retailer equipped to compete. “This is virtually ‘Bet the company,’” says Nicholas L. Ioli Jr., senior vice president and CIO, who was brought in a year-and-a-half ago to oversee the IT project. “If we’re going to be a player in the industry, we’ve got to leapfrog our competition. We’re talking strategic change.”

A&P’s a famous brand—to your grandparents. In 1912, A&P stores instituted “cash and carry” transactions at a time others kept customer tabs. A&P was among the first grocers to make its own products like A&P Bokar Coffee (which Cmdr. Richard Byrd carried on his 1929 Antarctica expedition). The company launched *Woman’s Day* magazine in 1937. And at its loftiest, A&P’s revenue in 1950 was second only to General Motors. But that was then.

The company has struggled for the past decade to remain competitive with such grocery giants as The Kroger Co., Safeway and Ahold USA, a unit of the Netherlands’ Royal Ahold, posting stagnant sales and neglecting its network of cobbled-together legacy information systems. In the late 1980s and early 1990s, the company made several large, ill-advised acquisitions that put a further drag on profits. In 1998, Christian Haub, the then 34-year-old scion of the family that owns Germany’s Tengelmann Group, which owns

53 percent of the company, took over as CEO. He quickly closed more than 100 stores and opened “superstores” in an effort he optimistically called “Great Renewal.” Results weren’t as “great” nor was the “renewal” as swift, as some on Wall Street had hoped, and Haub soon embarked on the plan to overhaul the company’s stumbling supply chain, which was severely handicapped by outdated technology and ineffective business processes.

A&P, which operates 750 stores in 16 states, the District of Columbia and Ontario, Canada, and includes the A&P, the Food Emporium and Waldbaum’s marquee, is far from alone in its decision to invest heavily in IT in an attempt to turn its struggling business around. Other industries, including manufacturing and airlines, are also making full-scale, public efforts to use IT to get closer to customers and Web-enable their supply chains. For the grocery business, which struggles with razor-thin margins and increasing competitive pressures, an integrated, ERP-like system could bring even more marked benefits, Ioli says. Still, A&P’s complex IT plan for the traditionally non-techy grocery industry poses great risk. Those in the industry are watching closely. “If A&P does succeed, it will reinforce the inclination of grocery chains and their senior management boards to bet their thin margin businesses on IT investments,” says Greg Girard, an analyst at AMR Research in Boston.

Defying the skepticism, A&P has embarked on a shared-risk partnership with IBM and the Minneapolis software company Retek.

A&P then and now



Company: The Great Atlantic & Pacific Tea Co.

Headquarters: Montvale, N.J.

Founded: 1859 by George Gilman and George Huntington Hartford

Ownership: The founding Hartford family sold a 53 percent stake in the company to the Tengelmann Group of Mulheim, Germany, in 1979 for \$125 million. The Tengelmann Group is privately owned by the Haub family.

Operates: 750 combination food and drugstores, conventional supermarkets and assortment food stores in 16 states, the District of Columbia and Ontario, Canada

Store banners: A&P, A&P Super Foodmart, the Barn Markets, Dominion, Farmer Jack, Food Basics, the Food Emporium, Kohl's, Sav-A-Center, Super Fresh, Ultra Food & Drug, Waldbaum's

Employees: 24,400 full time, 56,500 part time

Annual sales: \$10 billion

Profits: \$14 million for year ended in February 2000, up from loss of \$67 million in 1999. (1999 figure includes \$118 million charges for first “Great Renewal” project.)

While the vendors involved are banking on A&P's success to further their reputations in the retail sector, the supermarket chain hopes the effort will catapult it from industry laggard to market leader. (see "A More Perfect Union," Page 88.)

Trudging Uphill

When Haub unveiled plans for the IT and business process overhaul he called "Great Renewal II" in March 2000, the response from Wall Street was sharply negative. The company's stock price, which had long hovered around \$20 to \$30 per share, began a steep decline, sinking to a 52-week low of \$6 per share at the end of December. Wall Street analysts, already disappointed by the pace of A&P's turnaround, complained that such a heavy investment was taking value away from shareholders by cutting into company earnings and urged investors to hold or sell their A&P shares. "The Great Renewal projects are absolutely needed, but they are significantly late," says Mark Husson, an equity analyst at New York City-based Merrill Lynch, which has a sell rating on the stock. "Every time they take a step forward, they take two steps backward. The management team has missed budgets for 10 years in a row and only recently has senior management been held accountable." Husson added that the company's share price has taken a beating from weaker-than-expected sales and earnings reports and a propensity to open larger and more expensive stores without guaranteeing adequate returns.

The vote of no confidence didn't come as a huge surprise to Haub, who prefers the moniker chief culture change officer. "Wall Street is short-term oriented," Haub says. "If you tell them the payback will be visible in 18 months, they'll say that's far too long. They didn't understand how much work the company needed." He adds that A&P should save about \$325 million during four years by lowering costs and improving product availability. And pretax operating profits should rise by \$100 million per year once the overhaul is complete in 2004. Haub also dismisses suggestions by some analysts that the company might need to look for a global partner, noting that his family's Tengelmann Group is one of the 10 largest retailers in the world with \$25 billion in annual sales. "We're not interested in selling the company," he says. "A&P has internal potential that we need to realize."

Inside A&P's wood-paneled campus in suburban Montvale, N.J., 25 miles from lower Manhattan, the mood is resolutely upbeat. Colorful posters with perky slogans like "We're fresh obsessed" and "The power of one—you can make a difference" cover the walls, and IT executives stroll through cubicles in khakis and polo shirts that are the norm since Haub (or simply Christian as he is known to everyone in the company) took over. "We're dedicated to proving Wall Street wrong," says Frank Urbaniak, vice president of program management. In fact, Urbaniak says, the negative feedback from Wall Street serves as a powerful motivator. "The lower the



The A&P of old was famous for horse-drawn carts and outlets that carried store-branded goods. Now, IT is the anchor for a huge modernization effort.



stock gets, the more you see [our determination] around here.”

Upstairs from the IT department, Ioli sits in his spacious office talking excitedly about the project that he describes as his “biggest challenge ever.” As CIO at Citizens Utilities in Stamford, Conn., and Ethan Allen Interiors in Danbury, Conn., before that, Ioli says he specialized in taking companies through “significant transformation and aligning IS strategy with corporate goals and objectives.” During his career, he has watched CIOs evolve from operational managers who delivered on promises to strategic partners. “If you’re not aligned with business leaders, you can’t bring to bear the innovation that an enterprise needs,” he says.

Still, when a recruiter gave him a call about the A&P job in the

CICS (customer information control system), and 85 percent were accessed through terminals hooked to two IBM mainframes, one in New Jersey and another in Maryland. In an era when some grocery retailers were starting sophisticated customer loyalty programs, A&P had no way to analyze data from customers or suppliers. “We had extremely antiquated systems, from finance to merchandising systems to store and warehousing systems,” Ioli says. “There were huge gaps in our data flow and no data warehousing at all.”

Retailers like A&P often suffer from vast information gulfs, since disjointed distribution systems mean back-office operations rarely have clear information about what is selling in the stores, says Patrick Mullarkey, partner in Booz, Allen & Hamilton’s IT

practice in Chicago. “They lose visibility of the product once it goes into the store,” Mullarkey says, adding that Wal-Mart is one retailer that has bucked the trend by driving efficiencies in its supply chain by centralizing its distribution network.

Despite the clear difficulties, Ioli says he took the job because he felt he could work closely with Haub on technology, but also help oversee training and other large-scale change-management programs that go along with such a massive overhaul. “I’m at the strategy table here,” says Ioli, pounding his hand on a circular table for emphasis. “He [Haub] understands we can’t transform this company without IT. We’re reinventing the office of the CIO here. It’s not just about IT—it’s about knowledge management and process management. It’s about business strategy.”

A Brave New ERP

In his first days on the job, Ioli faced the daunting task of choosing a vendor, or vendors, to help A&P build an ERP system for the grocery industry, where custom code is more the norm. With help from IBM as a consultant, Ioli, Haub and other top executives first considered the best-of-breed approach that would involve buying several off-the-shelf packages for each area of the supply chain. That approach, however, would involve “building a lot of interfaces,”

Ioli says, noting that speedy implementation was key. While he implemented an SAP system on time and under budget in his previous job at Citizen Utilities, Ioli knew that no ERP vendor provided software designed specifically for the grocery segment, where perishable items must move swiftly through the supply chain, he



CEO Christian Haub
embarked on a supply
chain overhaul soon after
joining A&P in 1998.

spring of 1999, he had some major concerns. He knew that the grocery segment is low margin and highly competitive, and he found after doing some research that A&P had not invested in IT relative to its peers. Most of the company’s applications, which hadn’t been updated in 12 to 15 years, were written in custom code, Cobol and

Smaller supermarkets than A&P have had their share of ERP failures. With such a large project, A&P's major risks include scope creep, budget overruns and losing control of vendors.

says. Perishable items such as milk, fruit and meat all have different shelf lives and demand different types of warehousing, complicating the traditional retail supply chain. With milk, for example, it's important to maintain a "cold chain" throughout purchasing, warehousing and distribution. One break in that chain means the product is lost. Purchasing also becomes more complicated in the grocery industry because items are purchased regionally, nationally and internationally.

While competitors are updating their systems, Ioli calls A&P's effort "the first attempt to strategically reengineer a company and get as close to an ERP as we can" in the grocery industry. "We believe the technology and functionality will allow us to move ahead of the competition," he says.

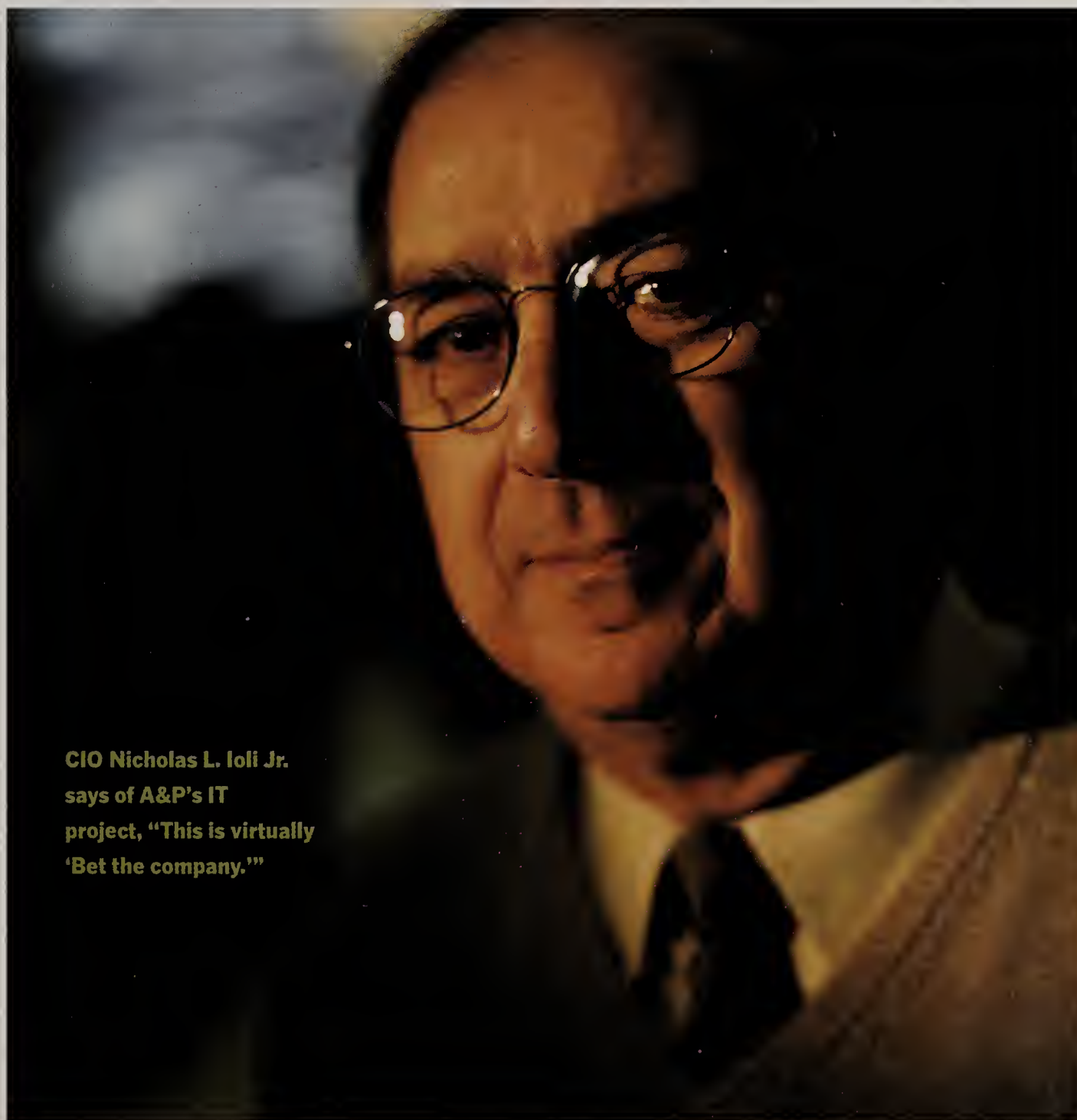
A&P chose Retek after bringing a group of vendors together for what Ioli calls a "bake off." A&P vetted the potential suitors around four main categories: features and functions, technology strategy, viability of the company and cost. "We were looking for a core system where all of our item and merchandising information would reside," Ioli says. "We needed functionality around category management, merchandising, procurement, promotion, pricing and forecasting—including the perishable side of the grocery industry."

Retek, a leader in retail software, scored high from a technology perspective since it had experience developing systems for major retailers such as Eckerd and Ann Taylor, as well as some smaller grocery chains in Europe and Asia. Ioli was concerned, however, about tying up A&P's future with a smaller company, even though there were no signs of trouble at Retek, which posted \$69 million in 1999 revenues and was on track to grow

last year. "I took a hard look and said, 'Am I going to bet a \$10 billion company's future on a company that small?'" Ioli says. "If they go to a position of vulnerability, we're very exposed."

To ease the concern, Ioli brokered a three-way partnership with Retek and IBM, which is serving as systems integrator. As a part of the contractual agreement, Retek will own the code in the end and A&P will share in the royalties if it's sold to other grocery companies. Significantly, IBM has taken an equity stake in Retek and now has a team of developers working at the Minneapolis software company. Though it's early in the project, all three parties rave about the arrangement. "The broad strategic partnership with A&P and Retek is a model of how we seek to work with customers," says Rob Hafker, IBM's national practice executive for retail headquartered in Armonk, N.Y.

Retek is now in the midst of building core retail applications for purchasing, merchandising and inventory management that are scheduled for delivery in three stages; the first was due in December. The Retek system, which will also include a data warehouse and a demand forecasting application, will eventually be integrated with a



CIO Nicholas L. Ioli Jr.
says of A&P's IT
project, "This is virtually
'Bet the company.'"

warehouse management system from OMI International, a transportation system from Manugistics of Rockville, Md., and store systems from Tomax in Dallas, and Salt Lake City's SofTechnics. Oracle will be used for financial and human resources. The transportation application is already up and running in Canada and others will be implemented early this year. "One person described it as a symphony," Ioli says. "We've got the score, and we know how all the parts tie together. Now we have to play the music."

Facing Big Risks

As with any grand performance, however, the opportunities for missteps and failures are legion. Say the words *enterprise resource planning* and some high-profile failures come to mind (drug distributor Fox Meyer Corp., now part of McKesson, liquidated after ERP problems; Hershey Foods' 1999 Halloween and holiday candy distribution delays hit its bottom line). Supermarkets have had their share. In November 1998, supermarket operator Nash Finch Co. backed out of a major SAP project after investing more than \$70 million. One month later, a 100-store supermarket chain in Central America, Corporacion de Sumermercados Unidos of Costa Rica, told *Computerworld* (a sister company to CIO's publisher, CXO Media) its \$7 million SAP retail project was late and significantly over budget. "Retailers have not been known to be smart investors in information technology," says AMR's Girard.

A&P's task is larger, of course. And with such a large project, major risks include scope creep, exceeding the budget and losing control of vendors. "When you get into the middle of a large project, especially when you're working with external people, there's a tendency for the project to grow," says Yvonne Genovese, research director in collaborative commerce for the Gartner Group in Stamford, Conn. Genovese says that projects like A&P's, with broad ambitions and scope, are likely to go over budget. What's more, she adds, finding IT staff qualified to work

Negative reactions to A&P's plans serve as a powerful motivator to IT workers. "We're dedicated to proving Wall Street wrong," says Frank Urbaniak, vice president of program management.

on ERP-type projects is a challenge in the current job market. "Many of the ERP players have moved to e-business," she says.

Still, installing the technology is the easy part, experts say. A&P has a good chance of completing the project on time and roughly on budget, says AMR's Girard. Some ERP projects falter, however, when it comes time to train thousands of employees to work on a new set of systems. "You can't control human nature," Genovese says. "If [A&P] rolls this system out to the users after they've put it together, there's a high probability the users will push back and not use some of the functionality." Adds Booz, Allen's Mullarkey, "When you think about 750 stores with a lot of part-time help and high turnover, there's an awful lot to absorb." Mullarkey calls the plan "ambitious" given the scope and the pressures in the grocery industry, but he approves of the business concepts. "If they can pull this off, it's very exciting. If they don't, there could be continuing erosion in competitive position."

Ioli and his team acknowledge the risks but say a painstakingly detailed business plan, which involves weekly meetings between top management, team leaders and representatives from IBM and Retek, will help keep the project on schedule and budget. "A&P has approached this in a way that is very different than those who have failed," says IBM's Hafker, who says top management's involvement in regular meetings and the phased implementation bode well for the project. Eight A&P employees work exclusively in a program office in Montvale, monitoring the project's schedules, status reports and budget (see "All the Right Moves," left).

Ioli also emphasizes that only 35 percent of the \$250 million investment will pay for the technology, while 65 percent will go toward training, communications and managing and measuring performance. In fact, the primary teams assembled to attack the project include one to address business processes, another to look at change management and a third to oversee IT. In the change-management section, separate groups are focusing on communications,

All the Right Moves

A&P's turnaround tactics read like a grocery list for best IT practices

- The CEO is an IT champion who calls technology a "key enabler"
- The CIO reports directly to the CEO and sits on the executive board
- IT projects—ERP, supply chain, point-of-sale systems—align with business goals
- Brokered an agreement with Retek and IBM that gives both vendors a stake in the project's success and gives A&P a potential revenue source
- IT investment accounts for training and staffing costs
- A centralized project management office with its own staff
- Budget in place to measure performance
- Outsourced noncore IT activities (data center, desktop support)
- Aggressively recruiting new IT talent



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training and performance metrics. Much of the employee training will be Web based, Ioli notes.

As for attracting IT staff, Ioli recognizes the difficulty but says A&P is looking to double the 150-member IT department before the end of the project in three-and-a-half years. The company is planning a massive advertising campaign in the New York-New Jersey region to attract staff and is increasingly outsourcing select noncore IT functions such as legacy application maintenance at its center in Montvale, along with simple help-desk requests and desktop support.

Miles of Aisles to Go

In a recent American Express ad, Haub poses with hand on hip near a coffee bar in a shiny new A&P superstore in Flanders, N.J. He's grinning and holding a Styrofoam cup of coffee above a caption reading, "To stay on top, try a blend of traditional values and fresh ideas." Of course, A&P isn't on top yet in the industry, and observers say it will take a while to convince investors that the Great Renewal projects are worth the effort and heavy cost.

If all goes according to plan, Ioli says, the well-lit, spacious A&P in the American Express ad will be the norm rather than the excep-

A More Perfect Union

A&P's vendor arrangement leaves the company and two partners with big stakes

When A&P in Montvale, N.J., approached Retek about building a grocery ERP system, the Minneapolis software company almost declined the offer. "We felt the competition was heavily skewed toward SAP," says Gordon Masson, Retek's president. "IBM and A&P had created a demanding environment. It didn't come across as very partnering." Retek managers reconsidered after A&P convinced them that the companies could collaborate on their vision for the grocery industry, and A&P could be flexible about some deadlines. The company is now firmly enmeshed in a partnership that has led to IBM—which has taken a stake in the software maker—endorsing Retek as its number-one choice for retail systems.

Partnerships are common in retail IT projects, but many such agreements fail because the parties have conflicting interests, says Yvonne Genove'se of the Gartner Group in Stamford, Conn. If this one is to succeed, it may be because there's a lot at stake for all three partners.

For A&P, the upside is clear. If the partnership succeeds, the company's results will improve and it will become an industry leader, gaining royalties from the sale of the system to other retailers. Retek will ultimately own the code it creates for an industry desperate for a tailored ERP system. If it works, Retek walks away with a blue-chip reference and a firm and profitable tie with IBM. If it doesn't, Retek will have a demanding customer on its hands that could drain resources from the company.

For its part, IBM is angling to boost its retail business and gain a foothold in the underserved grocery segment. For the moment, all three parties voice confidence and say several large players in the industry have already expressed interest in buying the new software. "The commitment often isn't there with some of the big companies, but with A&P it's definitely there," says Masson. "Sometimes companies lose their appetite. That's not going to happen here."

A&P has a good chance of completing the technology part of its project on time and roughly on budget. But then it has to train thousands of employees to work on the new systems.

tion. In three-and-a-half years, a Web-enabled supply chain will improve relations with suppliers and customers; information from customer purchases will be analyzed by data warehouses, leading to better customer service and shelves stocked with the most desired and freshest products; and customers will zoom through self-checkout lines. Already, A&P has joined the World Wide Retail Exchange, a B2B marketplace in which large retailers, including CVS, Kmart and Target, can do business with their suppliers (A&P joined under the auspices of its parent, Tengelmann Group). The company has installed self-checkout systems in 90 stores, Ioli says, and in the not-too-distant future some form of online ordering will allow customers to shop at work and pick up groceries on the way home.

A recent visit to an A&P in the tony Boston suburb of Duxbury, Mass., however, shows the chain has a ways to go in projecting its new customer-centric image. A Coupon Xpress machine that promised instant savings was out of service, while dimly lit aisles and limited selection spoke more of old-time grocers than spiffy, high-tech superstores.

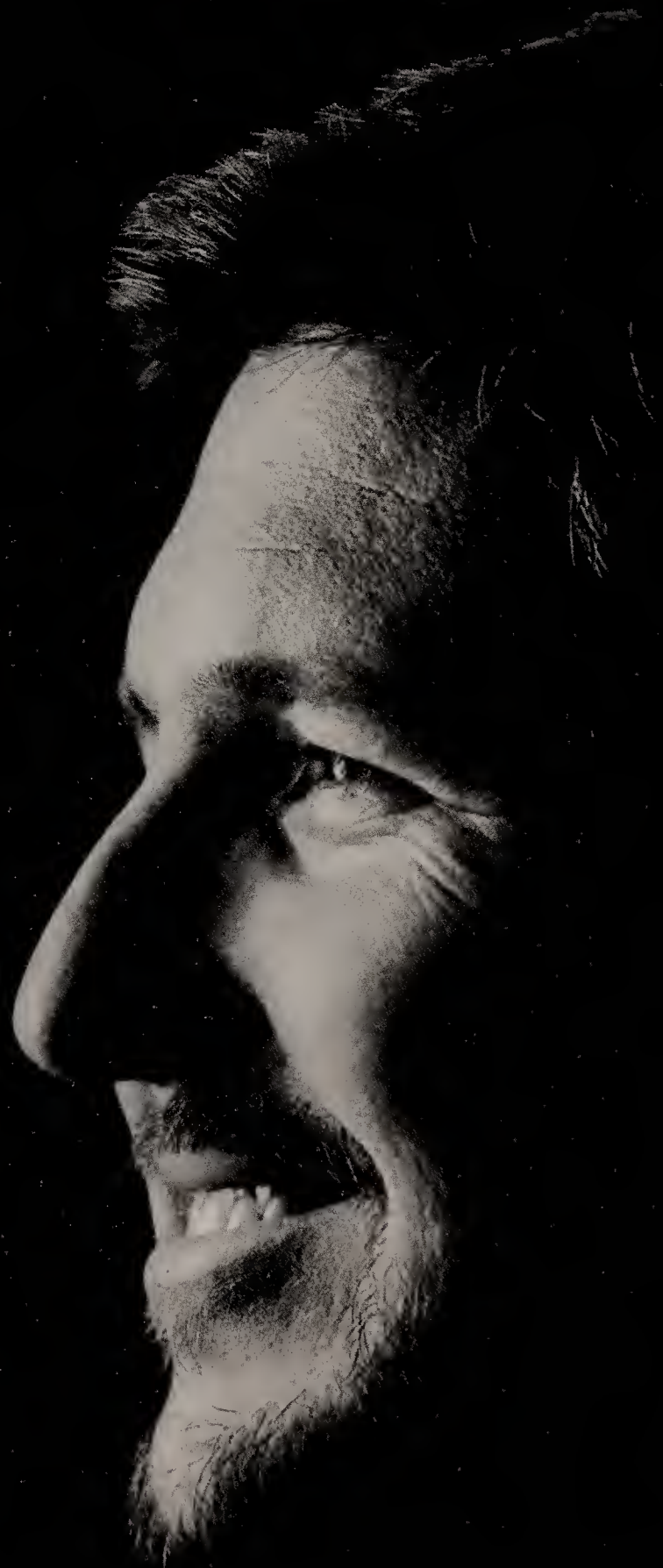
"A&P is a company that didn't do a lot of things others were doing over the past two or three years, such as putting capital in their stores and focusing on customer service," says Meredith Adler, an equity analyst at Lehman Brothers in New York City. "They needed to make these investments [in Great Renewal II] in order to stay an independent entity. But in this tough competitive environment, it may be a while before we see the benefits." **CIO**

Senior Writer Susannah Patton can be reached at spatton@cio.com.

—S. Patton

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*Mark Tonnesen, Vice President Information Technology
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in the nightmare of slow implementation.**



ADEXA

K N O W M O R E

When Wells Fargo Education Financial Services banished paper, loan sales jumped. And now customers are turning to Wells Fargo for other banking needs.

BY REBECCA LYNCH

Paperless Tigers

The Company: Wells Fargo & Co.

Founded 1852 Assets \$234 billion
Headquarters San Francisco Employees 104,000
URL www.wellsfargo.com

"NIGHT AND DAY." That's how William Moffitt describes the change in his day-to-day job after his company went from paper-intensive to virtually paperless. As a customer service manager for Wells Fargo Education Financial Services (EFS) in Sioux Falls, S.D., Moffitt and his staff serve student loan applicants (from parents of kindergartners to postgraduate students) and school financial aid officers from around the country. Before 1998, when EFS installed a sophisticated workflow and imaging system, Moffitt says he spent "literally, hours every day" just looking for customer files, which might have been sitting on a desk in another department or tucked away in a file room. Worse, they might have disappeared completely into the world Moffitt cringes to recall: the "we-must-have-lost-it-somewhere" place.

Today, that paper glut traditionally associated with student loans is gone, and customer service reps can access customers' information with a mere mouse click. "After we installed the system, I never had to hunt for files again," Moffitt says. "Today, I have all the information I need on my desktop." Customer service reps are no longer wearing out the soles of their shoes, and, more important, loan sales are way up. In 1994, EFS originated approximately \$800 million worth of student loans. In 2000, that number jumped to \$2.1 billion, making Wells Fargo the leading provider of education finance in the country.

Yet the story doesn't end with imaging and workflow. Today, customers can get speedy service whether they contact Wells Fargo by phone or visit its website. And now they can get loans approved online in a matter of minutes. Although this level of service has helped make the student customer segment one of the five core business lines in Wells Fargo, the increase in loan sales may be the start of something even bigger: Impressed loan customers aren't



Imaging and workflow allow Customer Service Manager William Moffitt (right) to better serve Wells Fargo's student loan borrowers. And that's helping Wells Fargo cultivate long-term relationships with some of its youngest customers, says Senior VP Paul Dockry (left).

only telling their friends, they're purchasing other Wells Fargo products. The financial services corporation's evolving CRM game plan—to attract new customers, retain them and provide everything their financial hearts could desire—is beginning to bear fruit.

Banishing Paper

In 1994, applying for a student loan at any financial institution was generally a frustrating experience that required weeks of waiting (and many chances for files to go MIA). EFS saw an opportunity to make fast, efficient service a competitive advantage by employing state-of-the-art technology that would virtually eliminate paper—and errors—from the loan approval process.

"We weren't losing business back in 1994," says Paul Dockry, senior vice president and director of loan servicing operations at EFS. "But we knew by enhancing the level of our service and our ability to market our service we'd give customers a reason to come to Wells Fargo—and stay." Rather than sell loans before the customer paid them off, EFS decided to retain loans for their life span to build better customer relationships as well as a long-term revenue stream. And instead of using third parties to originate and service those loans, EFS decided to handle them itself.

When it brought the task of loan servicing in-house, EFS implemented electronic capture software for document retention

from Wang (now Eastman Software). In early 1998, EFS began working with Paragon Systems to automate its business processes through a full-scale image and workflow solution. "We started from ground zero," says Dockry. "We decided to do something different." It chose Eastman's Enterprise Workflow and Imaging System software for several reasons. For one, existing files of current customers could easily be converted to the new system. In addition, Eastman's push/pull system—work items in a queue are pushed to the customer service representative's desktop and when each item is complete, another appears—was unique at the time. Finally, the system could accommodate the growing customer base EFS was confident it would

achieve by effectively and efficiently servicing loans itself.

EFS began by implementing imaging and within three years added the workflow component. Now, information is routed and processed within 24 hours of receipt; in some cases loans can be approved and disbursed in minutes. Without a significant increase in staff, Wells Fargo processes 70,000 documents per month—an increase of more than 50 percent from last year—and Dockry expects the volume of documents processed to grow another 25 percent to 40 percent next year. According to Dockry, in the old environment, 10 people would have had to grow to 50 to handle the workload. Because it installed an imaging and workflow system, he says, EFS added only a handful of new employees to help manage the growth during the past three years.

Nuts and Bolts

So how does EFS's near-paperless loan servicing work? High-volume scanners scan all hard-copy documentation coming into the mailroom within two hours of their arrival. The scanned documents are then tied to the student/parent's account and moved into workflow queues for processing. Online loan applications submitted through Wells Fargo's website and fax machines converge with the imaged documents to join the queue. A team member who reviews documents flags any errors—such as incomplete applications—and, if necessary, an EFS employee calls the borrower for clarification. At that point, approval is granted pending receipt of the original signed master promissory note. "Approval takes minutes and hours," says Dockry, "not days or weeks." For loan applications transmitted electronically by schools, a hard copy of a partially completed promissory note is generated and sent to the borrower for signing (eventually EFS plans to enable electronic signatures so that borrowers will be able to sign instantly online). Once the signed copy is returned, the document moves to a review queue in workflow and the loan is flagged as ready to disburse.

EXPERT ANALYSIS BY KIMBERLY COLLINS

CRM Starts with Customers

Wells Fargo Education Financial Services has an interesting approach to using customer service to lead sales. I like the strategy as it suggests that the bank has listened to its customers' frustrations and has worked on building a CRM strategy that gives customers what they want, leading to increased cross-sell opportunities and, subsequently, profits. Most banks simply try to go for the cross-sell, and vendors seem to perpetuate the misplaced notion that that is a wise CRM strategy. Banks really have to start understanding what their customers' issues are and build CRM strategies around those issues. It is the only way they will build loyalty and increase customer value. Ideally, there should not be a distinction between marketing, sales and service; from the customer's perspective it should be just a good customer experience.

Second, Wells Fargo has targeted an intriguing market. Rather than going after the market that already is affluent (which is where many banks start), the bank is targeting a younger market with potential. Wells Fargo is smart to look at the lifetime value and recognize that buying loyalty now from those getting college degrees (especially from certain colleges) can reap future benefits. Many banks fail to consider lifetime value when developing their CRM strategies. Although Wells Fargo's approach is now somewhat unique, watch for others to follow suit.

Finally, focusing so strongly on providing top-notch service goes a long way toward helping Wells Fargo mitigate potential customer concerns about privacy issues. Customers who perceive Wells Fargo as offering value will be more likely to share their information with the bank.

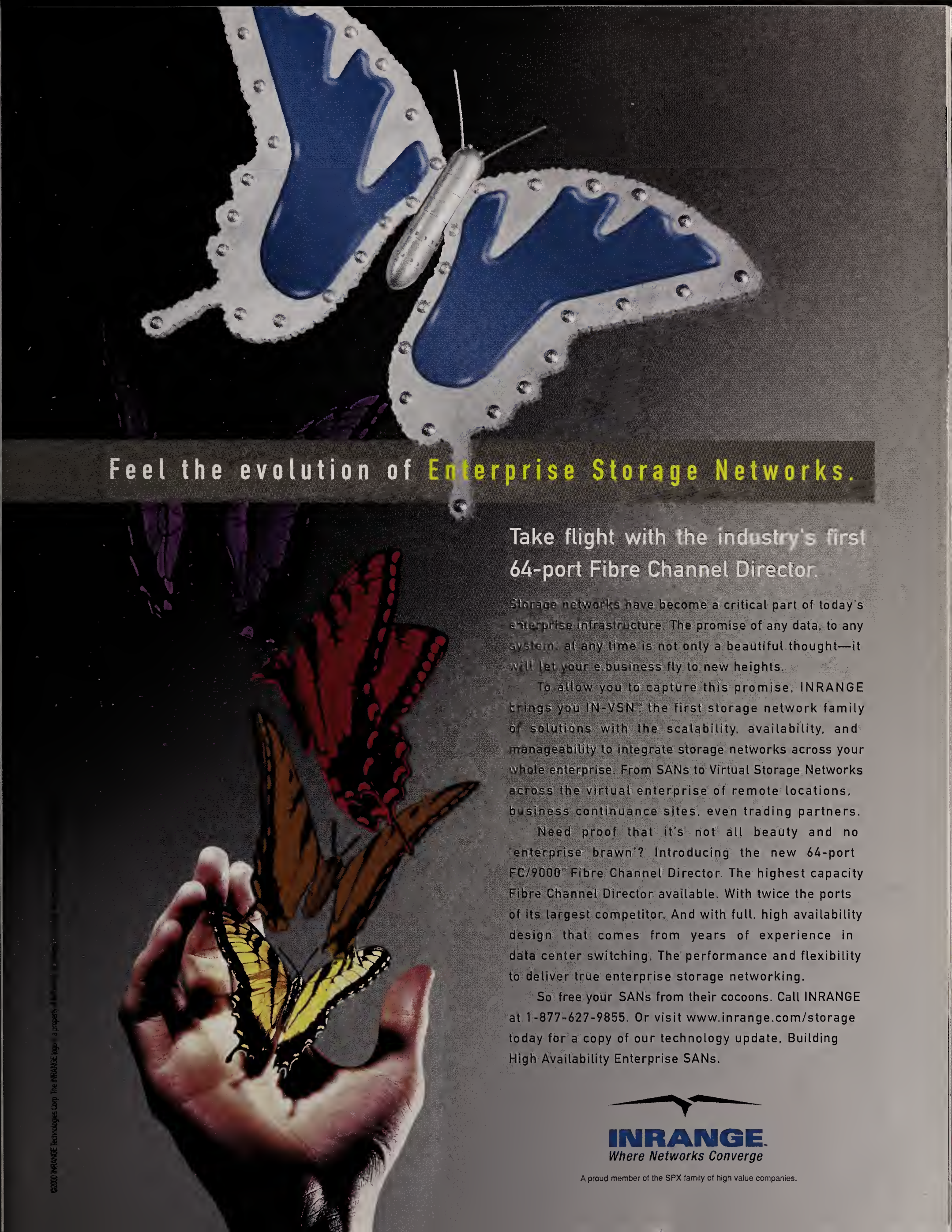


Kimberly Collins is an analyst at Gartner Group, where she focuses on the marketing aspects of CRM in retail banking, including database marketing, campaign management, customer profitability and related CRM analytics. She can be reached at inquiry@gartner.com.

Online applications go through the system even faster. Existing customers with college loans who need graduate school funding, for example, can be approved in minutes. "It used to be a three-week delivery process at best," says Dockry. "We're now within minutes of approval." For repeat borrowers, as long as EFS has a signature on file, approval and disbursement can occur on the same day.

"There's no need for paper shuffling anymore," says Bryan Roark, vice president and manager of sales and services. "Before there were all these potential points of failure—

papers were lost, files were gone. Now, we're more effective because we are focused on answering calls, not tracking down documents." Although he can't specify how many files were lost during the loan-processing Stone Age, Roark says these days his department answers 15 percent to 20 percent more calls per day. And more important, customers are happy: In a 2000 survey, 75 percent of student loan borrowers said they would recommend Wells Fargo to a friend. And 90 percent of student loan officers—an influential group of secondary customers



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who funnel a great deal of business to Wells Fargo—said they had a high level of satisfaction with the bank's loan products and processes. Roark attributes the bank's success directly to imaging, which virtually eliminated embarrassing problems. "No hands touch these documents except those in the mailroom. The documents can't get lost on desks or in file rooms." And because the system works in real-time instead of relying on batch processing, imaged information is available immediately.

That's good news for the school loan officers who advise students where to apply for loans. When Lori Shaffer goes to work helping students obtain education loans, she needs answers—fast. Shaffer is the assistant director of financial aid system development for Apollo Group, the parent company of the University of Phoenix, a nontraditional school that targets working professionals in pursuit of bachelor's, master's and doctoral degrees. With students moving through the system on individual schedules, the school can't always wait weeks for a bank to approve financing. Because EFS can approve and disburse loans quickly, it's on Shaffer's short list of preferred lenders. She works with more than 200 lending institutions, yet says EFS has made her a true fan because its customer service is virtually glitch-free. And in some cases, loan approval can take mere minutes. "Life is easier when you don't have to worry about the loan process," says Shaffer.

From Streamlining to the Great Eight

Reengineering the messy, manual process not only streamlined EFS's loan business, it was the first step of many toward furthering the bank's CRM strategy.

EFS believed if it could offer students quick approvals and efficient, accurate service throughout the life of loans, it could lure them further into Wells Fargo-land. "The majority of customers are traditional students at the front end of life," says Dockry. "The thought was if they have a good experience with their lending institution, they'd stay." In other words, student loan cus-

"The majority of customers are traditional students. The thought was if they have a good experience with their lending institution, they'd stay."

—PAUL DOCKRY, SENIOR VP, WELLS FARGO EDUCATION FINANCIAL SERVICES

tomers will one day consider the bank for other big-ticket items such as mortgages, car loans and credit cards. The investment in cultivating relationships with students is beginning to pay off. Last year, the number of loan customers who availed themselves of other products offered by the bank jumped from

ing Wells Fargo an opportunity to offer them additional products and services. And because Wells Fargo has one of the largest populations of Internet banking customers in the nation, it uses the website to help sell student loans. "One of Wells Fargo's top 10 strategic initiatives is to cross sell and offer valued financial services products to our customers," says Dockry, referring to what's known around Wells Fargo as "going for the great eight." With the help of a data warehouse and collaboration among Wells Fargo divisions, the goal is to sell each customer eight other products—mortgages, credit cards and so on—making Wells Fargo a one-stop financial services organization for all its customers' needs.

Wells Fargo strives to make it easy for customers to do more business with the bank. Education finance customers can use the Wells Fargo website to access loan information, transfer funds, check their savings account balance and even

send e-mails to the bank. (At this point, Dockry says, Citibank is the only other financial institution to offer all of those services online.) "We're not sticking with the old standard of 'Here's what we provide,'" says Dockry. "We continue to look at the big process of what customers want." 

CRM at Wells Fargo EFS

CRM objective: Offer fast, efficient service to student borrowers to encourage them to become lifelong Wells Fargo customers

Process changes: Streamline student loan approval and disbursement by going virtually paperless and employing a workflow system; offer online loan application and servicing over the Internet

Enabling technology: Eastman Software Workflow for NT 4.0, Microsoft Sequel 7.0 database, Kodak Midvolume imaging capture software 1.2, proprietary Java-based online customer interface tools

Payoff: Loan approval time cut from weeks to in some cases minutes, increased loan sales, increased percentage of borrowers who purchase multiple products from the bank

4 percent to more than 8 percent. "We're seeing a dramatic increase in people signing up for other products," says Dave Hawn, senior vice president of IT. He attributes part of that increase to the imaging and workflow system.

Wells Fargo's website is also contributing to the increase in multiproduct customers. Since launching the Wells Fargo online banking services for the EFS division last fall, Dockry says that some 2,200 new customers have signed up for the service each week, giv-

Do you have an interesting customer-focused case file to share? Send your ideas to casefiles@cio.com. Rebecca Lynch is a freelance writer based in Wayland, Mass. She can be reached at peachymama@aol.com.

MISSION CRITICAL XML

**XML Passes
Litmus Test**



**Logical
Logistics: An
“Approachable”
Solution Comes
Down the Track**

FRED DOMKE,
chief technology officer,
Transentric Corporation

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XML Passes Litmus Test

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WITH A DIZZYING ARRAY of information technologies, services and methodologies vying for your attention like overanxious suitors shouting "Me! Me!" it's a good idea to step back and ask what's really worth your time and effort to explore.

As veteran CIOs know, there are three essential tests to prove the viability of a new or emerging technology.

- First, does it hold forth the potential of real business value to the enterprise, particularly for e-business solutions?
- Second, is the technology a de facto and broadly accepted standard?
- Third, can it integrate well and interoperate easily with existing technologies into which

CIOs have already invested heavily?

If the answer is a strong affirmative for all three questions, you've got something worth a long, hard look.

By all indications,

eXtensible Markup Language, or XML, is one such technology that passes this CIO litmus test. What started out as an effort to create a more flexible Internet information delivery language has blossomed into an e-business enabler capable of delivering a true competitive

advantage to companies that embrace it. And embracing XML they are.

THE XML ADOPTION INDEX SOARS

On a quarterly basis since last June, *CIO* magazine has polled 500 IT managers across a variety of industries and company sizes to gauge the acceptance and use of XML in the XML Adoption Index. The index tracks the actual and anticipated use of XML in the enterprise, as well as tracks how much CIOs intend to spend on XML technologies.

The results from the November 2000 study, as contrasted with the initial study just five months previous in June, speak volumes about the rapid adoption of XML. By association, the only conclusion to be reached is that XML passes the CIO litmus test with straight A's.

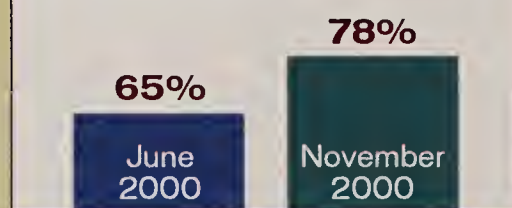
As the Figure, "On the Up and Up," reveals, nearly eight out of 10 organizations in the survey are using or considering using XML as of the November 2000 study, up almost 15% from June. Not only that, but the amount of actual spending on XML in individual organizations is also rising, as shown in the Figure, "Putting Their Money Where Their XML Is." In other words, more organizations are embracing XML, and at a rapid rate, while companies are boosting overall spending on XML implementations. Experts say the study may reveal just the tip of the XML iceberg.

"There's very likely a lot more XML usage in the enterprise than most people are aware of," contends Frank Dzubeck, president of the consulting group Communications Network Architects in Washington, D.C. "It's embedded in a lot of the things they do, in some of the services they buy. For example, the way a service provider connects to some external data sources or agents may well be XML-enabled. XML is becoming engrained into the IT environment in such a manner that it is almost ubiquitous."

Continued on page S4

ON THE UP AND UP

Percent of organizations using or considering using XML



SOURCE: CIO XML SOLUTIONS STUDY

LOGICAL LOGISTICS

>> An “approachable” solution has come down the track.

To a business, approachability is a defining characteristic by which it would like to be known to its customers. St. Louis-based Transentric Corp. is no exception, according to Ken Olsen, vice president of marketing at Transentric. To make good on its value proposition of providing information tools to allow companies to take significant costs out of their supply chain, Transentric must provide approachable solutions that can be quickly deployed and utilized across a broad swath of end users.

XML lies at the heart of Transentric’s effort to cover both itself and its solutions in a mantle of approachability.

“That’s what I’d say about XML; it’s approachable,” notes Fred Domke, chief technology officer at Transentric. “That means that a programmer can write code to generate XML documents and then a business person can understand these documents quite easily. The documents can then be sent with ease over the Internet or stored easily in a database as a text string. You can create XML objects from XML code. That’s approachable, from every front.”

Though formed as a separate corporation only this year, Transentric has a pedigree in the shipping and logistics business that goes back 20 years as a technology subsidiary of the Union Pacific Corp. Transentric today comprises some 300 mostly technology professionals producing customized supply network solutions that zero in upon linkages between discrete business processes in the supply network and the improvements required for modern e-business.

Take, for example, the case of a world-leading lumber company which sought to streamline ordering and inventory processes between its service representatives and its customers. Electronic Data Interchange (EDI) can work fine to automate such processes and create more of a self-service environment, but EDI typically is only available in large companies; it is too expensive for small- to medium-sized players, effectively shutting out of the e-business loop those and other equally important trading partners and prospects.

Transentric provided the lumber company’s customers and service representatives with a customized Web interface that uses XML technology to deliver shipment data to the desktop. Using XMLSolutions Business Integration Platform™ provided by McLean, Va.-based XMLSolutions Corporation (www.xmls.com), Transentric was able to extend its own tracking and problem-solv-

ing capabilities deeper into the company and out to its customers.

Now, with XML and technology from XMLSolutions, Transentric can deliver immediate answers for customers while specifying user-defined reports. “We will be using XML in a very strategic way,” says Domke. “It is ideal for transporting documents over the Web and for extending the benefits of e-business to trading partners in supply chains, particularly those partners that just don’t have EDI capabilities.”

As explained by Domke and Randy Morin, Transentric’s director of e-business solutions, the strength of EDI lies in the fact that

it has been developed over a period of decades by committees, and this slow development has anointed EDI as a clear standard marked by uniform processes.

“But EDI formats can be very arcane,” observes Morin. “Still, if we are to be successful with our customers, we have to recognize the huge investment many of them have in EDI.”

Enter the “approachable” technology, XML. Working with XMLSolutions Business Integration Platform’s “intelligent” translation process, Transentric’s customers can

quickly convert their EDI documents to XML-readable formats for their own customers and suppliers, and then can reconvert the XML documents back to EDI format.

“In the XML world, you can say, ‘Here’s my business object. Here is the shipper. Here is the quantity we want to order. I want to interact with someone who can sell me this,’” says Domke. “XMLSolutions helps us to help our customers marry the strengths of EDI and the EDI knowledge base with the growing benefits and ease of use of XML.”

If there is any downside to XML technology, it is that this richer format can be more data-intensive, creating more network traffic and CPU overhead than, say, EDI. However, both Domke and Morin quickly agree that the enabling of business processes and inclusion of more trading partners offered by XML far outweigh the system overhead issues. “Besides, XML files are extremely compressible,” says Domke.

With XMLSolutions, Domke notes that Transentric has gained a helpful and supportive partner committed to XML and to preserving the vast investments made in EDI. “XMLSolutions Business Integration Platform certainly does accomplish approachability,” Domke says, echoing a common theme.



From left: Randy Morin, director of e-business solutions, Fred Domke, chief technology officer, and Ken Olsen, vice president of marketing at Transentric Corporation.

Continued from page S2

LINGUA FRANCA OF E-BUSINESS

Why the growing infatuation between the enterprise and XML? According to Dzubeck, XML offers the unique value proposition "of getting around all the intra-company data problems that have plagued companies. It solves the content and application morass that has been the norm for 40 years. XML will become the lingua franca of the enterprise application world simply because it enables true business-to-business interoperability and drives business productivity to new levels."

Thus, XML passes the first part of the litmus test of business value, according to Dzubeck and others. Rick Russell, director of IT at Medela, Inc., a Chicago medical device manufacturer, says XML's business value "is encapsulated in how very easily it transports data between different companies or within a company. Once the data arrives, XML tells the database how to interpret it.

form standards groups, defining the schema or language rules for XML within their industries. Go to www.xml.org to see the fruits of this labor in the form of a registry of XML schemas sponsored by the Organization for the Advancement of Structured Information Standards (OASIS), which has posted more than 150 schemas in 45 industry categories. The schemas allow different business applications to exchange data and documents.

"User companies are uniting to drive XML development because they know it will drive their businesses, not threaten them," notes Dirk Coburn, research director for Java and XML for e-business at International Data Corp. (IDC), Framingham, Mass. "They will drive XML standards to higher and higher levels."

STRONG INDUSTRY BACKING

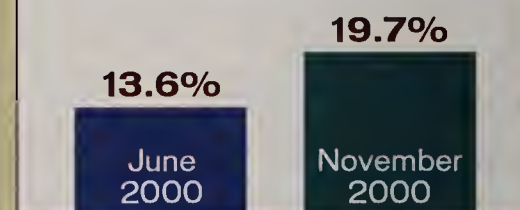
On the industry standards side, a broad coalition of leading IT vendors has been working on an XML framework, called the ebXML initiative for delivering end-to-end business-to-business transactions. This aggressive XML standards effort includes comprehensive partner agreements that have companies, often fierce competitors, working together to promote XML stan-

But EDI documents can be read only by other EDI users.

Companies like XMLSolutions of McLean, Va., produce and market robust translators that convert EDI doc-

BUILDING BLOCK OF E-BUSINESS

Percent of organizations currently building solutions with XML



SOURCE: CIO XMLSOLUTIONS STUDY

uments to XML formats for quick distribution via the Internet, and then can reconvert them back to EDI documents when they return to the original source. XMLSolutions has pioneered an "intelligent" XML translation process that puts highly descriptive information into previously compressed EDI translations, increasing the value and usability of rich corporate information.

"Almost everyone has a Web server, so it doesn't take much to utilize XML," notes Greg Saltzman, director of operations at Lightbridge, an application service provider in Burlington, Mass. "I find XML easier to implement and there is more knowledge about XML out in the marketplace. XML also enables greater flexibility. With XML the user is able to create specific fields for information."

Thus it is a small wonder that the XML Adoption Index demonstrates such speedy growth in XML use. And, according to IDC's Coburn, "Early adoption of XML, rapid as it has been, has been driven by many gee-whiz business opportunities that are paying off quickly. We are just seeing the tip of the XML iceberg. There are very great efficiencies that lie ahead."

PUTTING THEIR MONEY WHERE THEIR XML IS

Amount invested in XML in past year

June 2000

\$105,000

November 2000

\$141,400

Amount to be invested in XML in next 12 months

June 2000

\$220,600

November 2000

\$263,370

SOURCE: CIO XMLSOLUTIONS STUDY

And when it comes to moving data from application to application, it's a really great thing."

How does XML measure up in the second part of the litmus test, namely its broad acceptance as an industry and enterprise standard? In brief, according to Russell, "It is the standard of the future with companies."

Perhaps that is the factor that makes XML so compelling, namely its user-driven character. Companies in discrete vertical markets have banded together to

standards that will enable systems with disparate architectures to talk to one another in business-to-business transactions.

Finally, does XML pass the integration part of the CIO litmus test? Historically, business-to-business transactions have been left to electronic data interchange (EDI) technology, which has been the province of mostly large, well-financed trading partners. EDI works well for many users, who will continue to use it for years, in some cases at least until the termination of long-term EDI contracts.



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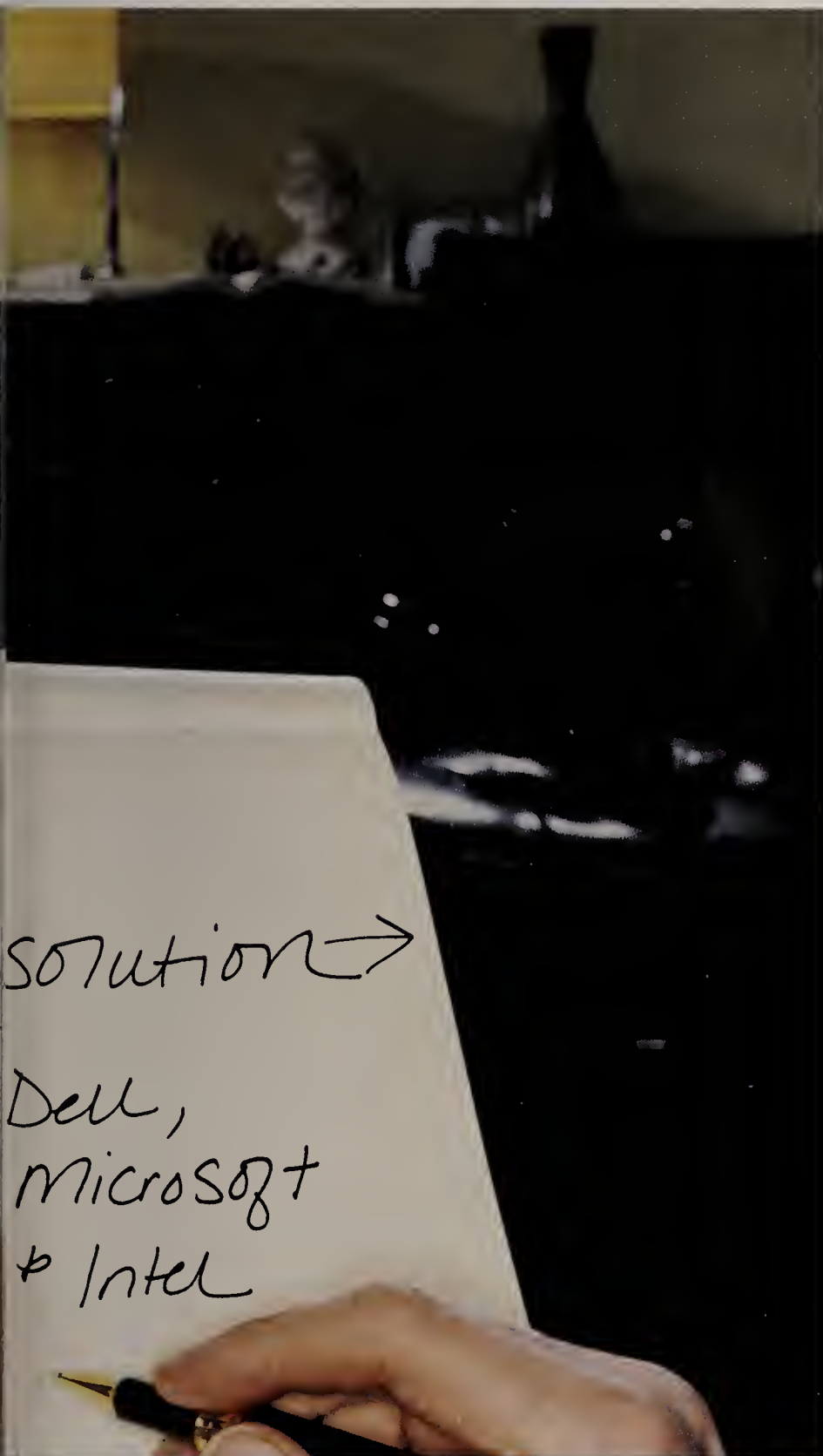


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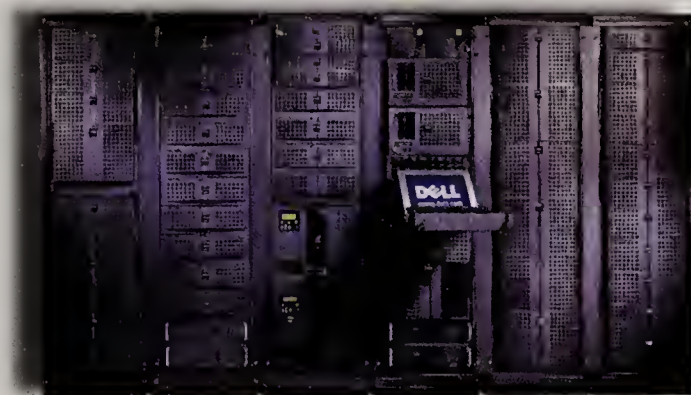
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ME

Dirty data is the dirty little secret that can jeopardize your CRM effort

BY BETH STACKPOLE

FOR YEARS, THE MONTANA DEPARTMENT OF CORRECTIONS WAS A PRISONER of data quality problems. Aging IT systems perpetrated countless data entry offenses in reports that the prison system was required to submit to state and federal authorities. And while the department's IS group put in hours of manual labor to try to maintain some level of reporting integrity, overall confidence in the quality of data was nonexistent and morale in the IS group was low. The situation came to a head four years ago when the department nearly lost a coveted \$1 million federal grant. The culprit: information systems that, lacking business rules and a data dictionary, failed to accurately forecast how many of a particular type of offender would be incarcerated. "We had an egregious data quality problem. Not to the point where we were losing offenders—but we

Reader ROI

- ▶ Understand why poor data quality is no longer a little problem
- ▶ Find out how costly dirty data can be
- ▶ Learn how to cleanse data

weren't able to accurately portray how many we thought we'd have over the next two to five years," says Dan Chelini, bureau chief for information services at the Helena, Mont.-based department.

With the go-ahead from the state prison's board of directors, Chelini's department mounted an aggressive campaign, from late 1997 to mid-1999, to turn around data quality as part of an overhaul of the prison system. The first step was to bring in a team from Information Impact International, a consultancy specializing in data quality, to evaluate organizational processes, acquaint the department with the concept of data stewardship and set up a methodology for data entry. Although some employees were leery at first of the new demands, they

first enter a facility—now function as data quality gatekeepers. They are accountable for accurately entering information on prisoners, such as names, last known addresses and identifying scars and disfigurements. The Montana Department of Corrections' data quality problem has been detained. "For the first time in years, we're meeting deliverables" such as reports to federal overseers, says Data Validity Officer Lou Walters. "People are involved and excited about pushing data quality."

Although companies deal with customers, not prisoners, the increasing need for accurate data is driving many organizations—

"We had an egregious data quality problem. Not to

the point where we were losing offenders—but we weren't able to accurately portray how many we thought we'd have over the next two to five years."

—Dan Chelini, bureau chief for IS, Montana Dept. of Corrections

in finance, health care, retail and other segments—to launch formal initiatives to bolster the quality of customer information in core business systems. Until recently most organizations haven't felt a lot of urgency or enthusiasm about cleaning up dirty data; inaccurate and multiple listings of customer information were seen as trivial problems and a tolerable price of doing business. But the current trend in many industries toward

data warehousing and data mining has increased the value of good data and the costs of cleaning up databases. That task is anything but trivial, and the costs, which include the direct costs of hiring people and consultants and the indirect costs of missed sales opportunities, are significant.

"Our studies in cost analysis show that between 15 percent to greater than 20 percent of a companies' operating revenue is spent doing things to get around or fix data quality issues," says Larry English, principal of Information Impact in Brentwood, Tenn. Some organizations, like the Montana Department of Corrections, are creating full-time positions around data quality and instituting home-

Lou Walters, data validity officer (left), and **Dan Chelini**, bureau chief for IS, Montana Dept. of Corrections

bought into the new standards once trained in basic data modeling and data cleansing techniques. A data validity officer was also appointed to rally support for the program and enforce the new rules.

The program officially launched August 2000, and the department claims to see some real results. Instead of a handful of programmers holding all of the responsibility for prisoners' information, 30 data stewards from all walks of prison life—from probation officers and attorneys to the guy who showers prisoners when they



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grown methodologies to ensure that information stays consistent and is usable across different types of applications. Other companies are purchasing data cleansing services and customer identification and standardization software from companies such as Vality Technology in Boston and Innovative Systems in Pittsburgh to clean up their act.

STAGE ONE DENIAL

For many companies, dirty data remains an unknown problem. "Old systems have limped along for years basically hiding data quality problems, either through departments putting out multiple versions of reports or leaving the reconciliation work to find the real answers to people who do this stuff by hand," says Ken Orr, founder of the Ken Orr Institute, an IT consultancy based in Topeka, Kan., and a consultant with the Cutter Technology Council, an IT think tank. Vality's term for this syndrome is "data denial," says Dave Stanvick, vice president of marketing communications. "Data quality has remained a closeted issue in IT because there's little visibility at the management level that the problem is occurring. Generally, data would have gone through many days of manual rework before it's presented in a report to senior management."

This kind of laborious scrap and rework, as it's called, fuels one of the most dangerous misperceptions surrounding data quality: that dirty data is all about simple inaccuracies like misspelled names, incomplete addresses and missing data fields. Throw some manpower at a database cleanup job, the theory goes, and the problem will go away. Not so, experts caution, who say that data scrubbing is a first step. The more critical move, they say, is to create standards for how data on customers or products is represented so that it maintains its integrity, whether used for billing purposes or to drive a direct-marketing campaign. This is also the only real way companies can get a customer's composite picture across all parts of an organization—a practice necessary for delivering the personalized service that many customers demand.

"How information is used is changing," explains Mary Knox, senior research analyst at Gartner Financial Services in Durham, N.C. "The focus used to be on data processing—where the value of data consisted in the context of a specific application. But data that's perfectly fine for the original application takes on new meaning and could very well cause big problems if you try to use it in a different way."

Consider a typical scenario: Let's say a Jon B. Smith at 123 Main St. in Lowell, Mass., exists in a bank's mortgage origination system and a John Smith at 123 Main Drive in Lowell, Mass., comes up in the bank's system for car loans. Without knowing

Best Practices for Data Quality

DATA SCRUBBING IS NOT ENOUGH. Data cleansing software addresses only the tip of the iceberg: inaccurate numbers, misspellings and incomplete fields. Comprehensive data quality programs must reach for data standardization so that information can maintain its integrity whether used for billing applications, targeted direct mailings or other functions. Standardization is also the only way companies can get an accurate view of their customer base across all touch-points in an organization.

START AT THE TOP. Don't hide data quality issues from top management—the executives need to feel the effect of poor data quality on an organization. Buy-in from CXOs is a must for instituting a data quality program with any long-term value.

KNOW YOUR DATA. Identify what data is used for and determine what level of quality is required. The level of precision needed varies with how data is used. For example, name and address fields require one level of quality if used for billing purposes and another if used to send legal notices or financial statements.

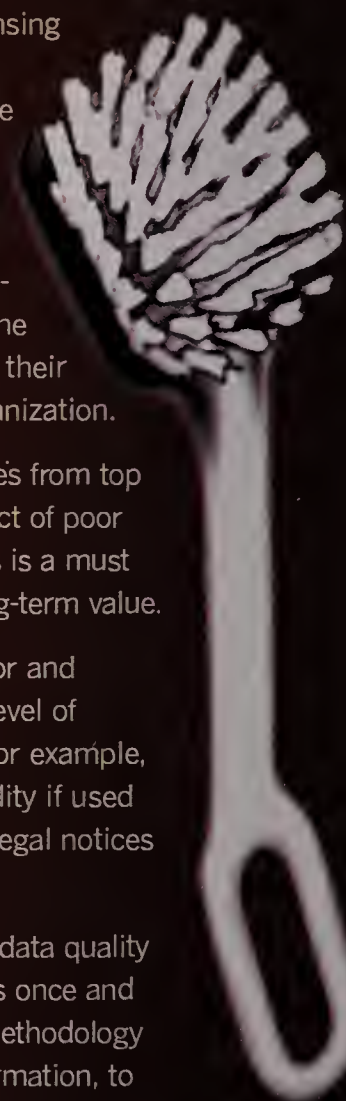
MAKE IT A CONTINUOUS PROCESS. Achieving data quality is not just about breaking out data scrubbing tools once and having a clean house. The key is institution of a methodology and best practices for entering and checking information, to which all employees adhere.

MEASURE RESULTS. Once the data quality program has been in place long enough to achieve basic benchmarks, institute regular audits and other measurement devices to ensure standards are being enforced and to determine any cost savings.

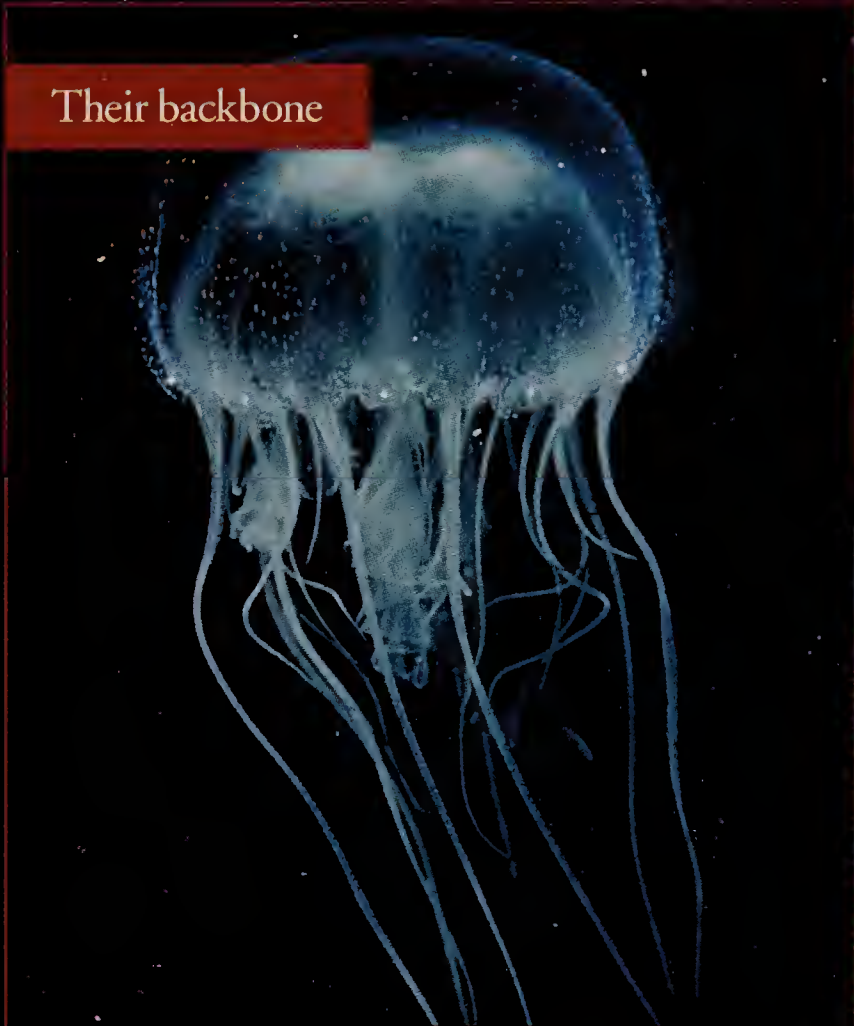
—B. Stackpole

for certain if the two Smiths are the same individual, companies can still process bills and get paid—albeit with some potential for duplicate work and a confused customer or two. That level of uncertainty doesn't fly, however, if a company attempts to use that same data to pinpoint cross-selling opportunities based on a customer's profile. And the situation worsens when the company tries to identify all possible customers in a particular household. A sales contact from this database could alienate customers with improperly targeted pitches or end up in the dead-letter office.

It's this inability to effectively uncover patterns in customer data—despite the millions of dollars now being poured into data warehouse projects—that's starting to raise data quality red flags. But even as companies acknowledge the problem, most have yet to embark on any formal campaign to measure the hidden costs of poor data quality. "Most companies don't have the time, energy and drive to do the kind of formal analysis it takes to evaluate the impact of dirty data on their businesses, except when a huge explosion takes place," says Stuart Madnick, the John Norris Maguire professor of information technology at MIT's Sloan School of Management in Cambridge,



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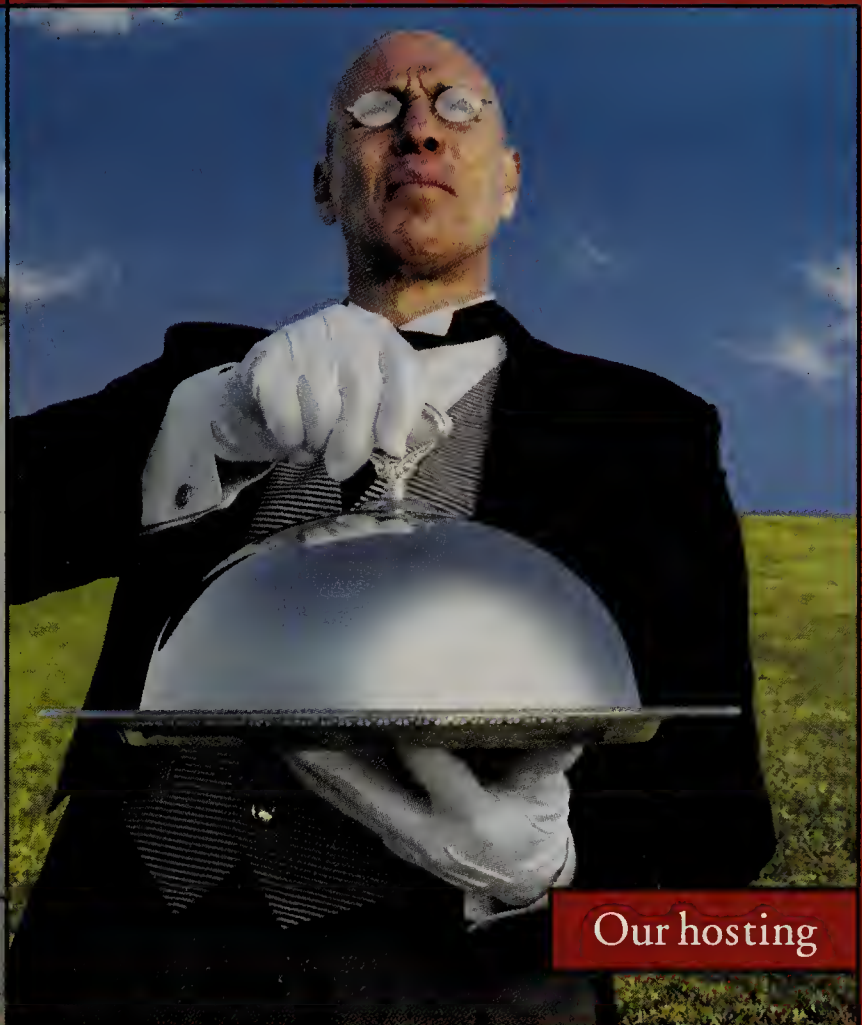
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Mass. He also coheads MIT's Total Data Quality Management Program, a research program devoted to the theory and practice of improving data quality. "The real cost of data quality has to do with how it impacts business, and that analysis is not trivial."

What's easy to determine, Madnick says, are the direct costs—for example, what it costs to employ personnel to manually check and correct database records and reports, or the expense of materials and postage for redundant mailings or product returns. But there are less-obvious, hard-to-measure expenses as well. These might be costs associated with warehouse space used to house excess inventory that was ordered because of faulty data, or equipment and facilities allocated to personnel who are strictly employed for the purposes of data quality workarounds. Finally, there are sales prospects neglected because data is unreliable and customers lost because of too few or too frequent marketing contacts.

STAGE TWO ACCEPTANCE

How can your company establish good data quality? At a few companies, the scrap and rework mind-set is slowly being edged out by a new culture predicated on making data quality improvements a continuous process, and giving employees at many levels responsibility for data quality. This means moving data quality concerns out of the back office, and making every employee who handles customer data accountable for ensuring that it adheres to the organization's established data guidelines. Buy-in from top management is essential to making this kind of radical organizational shift. "Management has to feel the pain of the status quo—they must understand the costs that have become an accepted way of doing business...because they've been so far removed from them in the past," says Information Impact's English.

Health care is one industry where the executive ranks have hardly

been able to ignore data quality issues. In that segment, high-end data cleansing software packages are fairly common because the stakes are so high. At Saint Alphonsus Regional Medical Center in Boise, Idaho, for example, proper patient identification is the CIO's number-one priority. Without high-quality data to make these identifications, health-care organizations like Saint Alphonsus put themselves at risk for everything from billing snafus to misdiagnoses that can endanger patients' lives (and engender huge lawsuits).

"Everything flows from making the proper patient ID," explains Leslie Kelly Hall, vice president and CIO of Saint Alphonsus. "We have more than 500,000 patients in our master patient index, which represents a good deal of Idaho's population. We can't begin to cut automation costs without first getting the correct identification of the patient, the provider or the insurer."

Saint Alphonsus employs Healthcare.com's EMerge master person index, which embeds Vality's Integrity data cleansing and standardization software, to ensure that it identifies patients with the highest degree of accuracy. Once confirmed in EMerge, the patient ID is broadcast to 46 connected systems, including those running various labs, pharmacies, electronic medical records and billing. "To the degree to which we can automate the process, we eliminate human error, which leads to dramatic savings and improvements in care," Hall says.

The Prudential Insurance Co. of America also has managed to weave data quality best practices into its day-to-day operations. But that wasn't always the case. Problems came to light around 1996 as the insurance giant embarked on a data warehouse project to get a companywide view of customers across eight lines of business (LOB), from traditional casualty and property insurance to financial services, in pursuit of data mining opportunities. "In the process of pulling together all the LOBs into one enterprise data warehouse, we realized that we had a lot of differences across data," says Pat Komar, Prudential's vice president of information services in Newark, N.J. Each LOB had developed its own set of codes for describing elements

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—Leslie Kelly Hall, VP and CIO,
Saint Alphonsus Regional Medical Center



PHOTO BY GLENN OAKLEY

Data Management

like customer name and policy number. That wasn't a problem as long as the LOB data was siloed, but the disparate terminology threatened to throw a wrench into the data warehouse. "Data was going through all kinds of transformations, and what was accurate for a line of business might not be accurate for the enterprise," Komar says.

That realization spawned a massive campaign to standardize data across the various LOBs, orchestrated by Komar with the support of Prudential's line-of-business CIOs and its corporate CIO. This meant garnering consensus on naming conventions for what's now close to 3,000 terms describing things like customer, policy and claim. "Each LOB had different product codes, but we had to have agreement for the enterprise warehouse," Komar says. During months of working lunches, Komar's team assembled a committee of



data experts from the various LOBs and got input on how core types of customer information should be labeled and modeled. The data SWAT team also appointed managers to ensure that the new standards were followed.

As a result of this standardization, Prudential was able to assemble a six-terabyte data warehouse built on a federated architecture, which flexibly combines data from a central repository and the company's 20-plus independent data marts. Komar says the approach is far more effective in producing a cross-functional view of customers than the earlier unintegrated series of data marts. In the meantime, adherence to data quality remains ongoing and pervasive: Prudential conducts audits to ensure naming standards are strictly enforced, and the company breaks out the occasional scrubbing tool to keep data files

squeaky clean. "We get together once every couple of months to talk about data problems," Komar says. "It's a collaborative process to get things changed if they don't work."

STAGE 3 LEVERAGE

Most companies getting serious about data quality share an ulterior motive: a desire to gain a more intimate portrait of their customers, the goal being better service and increased sales. In banking, the need for reliable data to fuel customer relationship management initiatives is particularly acute given the rampant consolidation and mergers of the past few years. "Today, it's all about relationship

"In the process of pulling together all the lines of business into one enterprise data warehouse, we realized that we had a lot of differences across data. Data was going through all kinds of transformations, and what was accurate for a line of business might not be accurate for the enterprise."

—Pat Komar, VP of IS, Prudential Insurance

banking," says Mohammad Rifaie, senior manager of information resource management at Toronto-based Royal Bank of Canada, Canada's largest bank. "We have to know all the connections a client has to the bank in order to provide meaningful services. This issue of data standardization or linking data to know who is doing what at all of the bank's touch-points becomes critical...and that's what's giving province to data quality."

Using Vality's Integrity matching tool, the bank can now confidently run queries across different systems. It can determine, for example, who between the ages of 35 and 45 bought mortgages in Ontario over the past six months so that they can be targeted for mailings for additional services like equity lines or home improvement loans. Integrated, reliable data also allows customer reps to know if an individual with a personal account has, say, a commercial account as well so that the bank can tailor service accordingly. "You don't want to tell someone calling to complain about charges on their checking account that it's our policy that they pay the fees, when they have a commercial account with us for \$20 million," Rifaie says. "That's a



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Data Management

fast way to have them take their \$20 million elsewhere.”

The Integrity tool also protects Royal Bank of Canada against more mundane data quality mistakes. In the past, when entering customer information into databases, bank employees would often enter garbage character strings for the postal code if they didn't have the proper information at hand. Before Integrity was implemented in 1996, this workaround caused a bit of a stir. When the bank tried to target a particular geographic area promoting a popular Christmas loan, which annually provided an important chunk of the bank's new assets, a notable percentage of clients in that area came up with the postal code *H0H0H0*, a garbage string that passed the system's edit checks because Canada uses alphanumeric postal codes. “If the postal code's not accurate, you're not getting accurate information for mailings,” says Rifaie.

Targeted direct mail is so critical to St. Louis-based CPI Corp., the owner and operator of Sears Portrait Studios, that data cleansing and standardization have always been part of the company's data warehouse efforts. CPI relies on First Logic's data quality suite, I.D. Centric, to cleanse customer information on three levels: standardize name and address data, correct addresses and flag those considered unmailable, and run names and addresses against the company's close to 1,000 studio locations to avoid mailing promotions to its own sites, says Jerome Pion, a programmer and analyst at CPI. The presence of I.D. Centric enables CPI to avoid a repeat of an embarrassing incident that happened in Canada a few years ago, in which a customer received a follow-up mailing addressed to her and “her two brats”—language inserted by a studio employee into the CPI database. The woman angrily called CPI to say that she had become a former customer.

Another important role for the software's matching capabilities is identifying all potential customers in a single household for demographic analysis—even if different individuals frequented different stores. This helps CPI get a full transaction history so that it can do things like send bilingual mailings, if required, lure one-time customers back with discounts and send reminders on children's birthdays—one of CPI's most popular photo events, Pion says.

Having this kind of reliable insight into customers' purchasing behavior helps CPI build longstanding relationships. “Once we acquire a customer, it's more efficient to retain that customer and build a relationship with him than to acquire an additional customer,” notes Tim Hufker, CPI's chief technology officer. “Having clean data gives us a more efficient and effective way to build relationships and keep customers coming back.”

THE NEXT STAGE WEBIFICATION

The Web is quickly becoming a key driver of data cleanliness (or dirtiness) as it gains ground as a way for customers and other



“Today, it's all about relationship banking.

We have to know all the connections a client has to the bank in order to provide meaningful services. This issue of data standardization or linking data to know who is doing what at all of the bank's touch-points becomes critical, and that's what's giving province to data quality.”

—Mohammad Rifaie, senior manager of information resource management, Royal Bank of Canada

external parties to input and access business information. CPI plans to increase its reliance on the Web as a vehicle for promoting special offers and collecting customer information, which will make data quality tools like I.D. Centric even more important, Pion says. CPI hopes to capture information from its website's visitors, run the data through the address standardization software and match it to customers in CPI's data warehouse. “If we get a matching customer, we now have an e-mail address to send mailings, which is faster and cheaper [than paper mail],” says Pion.

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AT&T's CRM technologies group sees its Web efforts potentially intensifying its data quality problems, according to David Binkley, senior technical staff member of the CRM technologies group in Piscataway, N.J. "Opening up address changes from the Web is a whole new ball game," Binkley says. "At least when you're dealing with 2,000 to 3,000 customer reps, you can put methods and procedures in place to get names and addresses entered correctly. When you're dealing with the Web, you have no control over what's going on out there." In response, the CRM technologies group has deployed Trillium 3.0 data cleansing and standardization software from Billerica, Mass.-based Trillium Software, to clean up customer data coming in from local exchange carriers.

The expediency of Web transactions is another area that's going to give companies data-quality headaches, says Gartner's Knox. "If you've got bad data



on customers, they're going to be aware of that more rapidly" because they can view their data profile online, she explains. "They're also more aware of what you know and don't know about them...so a company will look foolish if it doesn't realize a customer is the same person across multiple accounts."

Looking foolish or out of touch with its guests' needs is the last thing Wyndham International wants in the hypercompetitive business hotel market. When Wyndham, the fourth-largest U.S. hotel chain, recently surveyed its frequent business guests, it found that, to most business travelers, staying in a hotel is no vacation. In lieu of reward programs, this important clientele preferred stays that felt more like home. They wanted to be remembered from one trip to the next, drawing comfort from amenities like having their favorite newspaper delivered each morning or keeping the fridge stocked with their preferred snack foods and beverages.

Wyndham's response was Wyndham ByRequest, a program that leverages preference data collected from customers to give them a more personalized experience. But to build the customer info database, the hotel chain had to devise a strategy for achieving near-perfect data quality to avoid making the kind of mistakes that could alienate good patrons. "We have to make sure, for instance, that we don't leave a bag of candy for a diabetic," explains Daniel Pritchard, former director of systems development at Wyndham in Dallas. "When you're telling people that you're going to go out of your way to remember them, you don't get too many opportunities to fail on your promise."

What started out as a pilot project in November 1999 has become the hotel chain's major marketing thrust, Pritchard says.

"Once we acquire a customer, it's more efficient to retain that customer and build a relationship with him than to acquire an additional customer. Having clean data gives us a more efficient and effective way to build relationships and keep customers coming back."

—Tim Hufker, CTO, CPI Corp.

Customers are asked to spend a good 10 to 15 minutes filling out preference information, either on the company's website or through brochure cards placed in every room. With several avenues for collecting preference data, it was essential for the hotelier to put a stringent data quality program in place. Wyndham is using Innovative Systems' Data Quality Suite to clean up customer data and match up customer profiles, and it's even running data that exists separately from the ByRequest program through the cleansing solution to ensure the highest levels of consistency.

"Data quality is the cornerstone to the usefulness of our data warehouse," Pritchard says. "Without the ability to make sense of poor quality data, we knew the ByRequest program wouldn't have any merit." Now, when a guest specifies she'd like a good bottle of cabernet and a feather pillow, the Wyndham team can rest easy that she's not getting foam pillows and a beer. **CIO**

Have any experiences with dirty data? Send them to letters@cio.com. Beth Stackpole is a freelance writer in Newbury, Mass. She can be reached at bstack@stackpolepartners.com.



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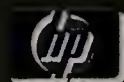
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BY MATT VILLANO

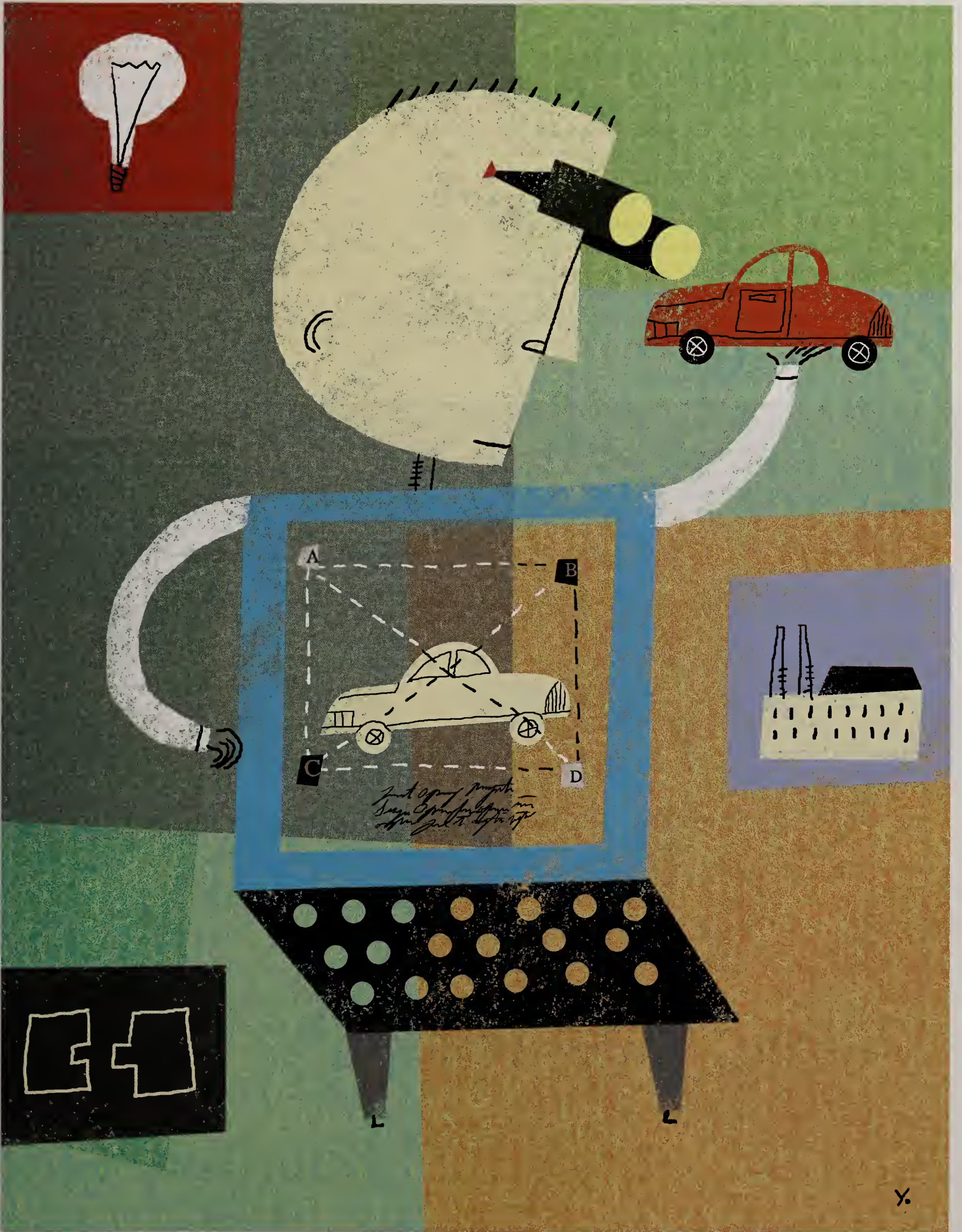
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Patrick E. Dessert is lying on his back, tinkering with the electrical system of a white Jeep Cherokee. A wire runs from beneath the truck's hood and snakes across the floor in front of him, the other end sticking into the back of a beat-up CPU. On a computer screen nearby, a web-

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Manufacturing

repeatedly. Dessert encourages visitors to oblige, and when someone does, he smiles and shakes his head in glee. "Like that, like that," he shouts, his eyes sparkling. "Isn't this neat?"

This is Dessert's playground, a place where experts say the future of automotive technology could be born during the next few years. As director of Oakland University's 3-year-old Product Development and Manufacturing (PDM) Center, Dessert oversees a number of projects that eventually will streamline the electrical systems of cars, transforming vehicles into roving Web browsers with the capacity to interactively circumvent mechanical problems and automatically schedule appointments at the shop. These R&D projects combine IT with engineering, product planning and computer science in a way that no other efforts in the automotive industry ever have.

Ask manufacturing experts about efficiency, and few, if any, will say that automotive companies are headed in the right direction. For years, the auto industry has distanced engineering from IT by building cars without linking these departments. Rarely do companies incorporate forecasting data or information about previous warranty claims into the plans for a new car, for example. Cast in such a supporting role, IT has taken the proverbial backseat. The result, notes Kevin Prouty, research director of automotive strategy for AMR Research in Boston, has been massive losses in rebates for unsold cars and costs for repairs under warranty. Last year alone, automobile manufacturers doled out \$24 billion in rebates to unload more than 5 billion unsold cars. These outlays could be avoided by integrating feedback on what's not selling and



what's not working into the design and manufacturing process.

The PDM Center is out to turn these trends upside down. By coordinating IT with electrical, industrial and mechanical engineering in a broader and more organic approach, carmakers can improve efficiency across the board. But rather than trying to combine data streams from individual segments of auto manufacturing, the center promotes a tactical inclusion of IT in the planning process from the start, encouraging the managers of tomorrow to eliminate departmental distinctions and integrate technology throughout the manufacturing cycle.

In many other industries, these kinds of interdisciplinary programs would be interesting but not extraordinary. But in the automotive industry, a market valued at more than \$900 billion, such sweeping process integration efforts are downright revolutionary. Since automotive manufacturing burst onto the U.S. economic scene more than 100 years ago, managers have kept data from critical departments separate; they've been relying on engineering for innovations and on IT to patch problems as they arise. Only now, after industry executives have grown tired of losing billions in avoidable inefficiencies every year, do experts say things might change.

"These companies want to revamp the entire process of making cars, integrate IT throughout and improve the overall flow of information," says Prouty. "Well, they know they're not going to wake up one morning and find their problems solved. In order to cut their losses, these companies need to reengineer the entire process. They're turning to the PDM Center to show them how."

systems curriculum

"No problem in the automotive industry is solely logistical, solely technical or solely organizational," insists Dessert, who has a PhD in systems engineering and has researched artificial intelligence systems. "For years, we in this industry have pigeonholed our approach to solving problems: IT does this, engineering does this and so on. We needed to find something better."

That something has come in the form of a curriculum based on systems engineering. Students at the PDM Center learn to view car manufacturing as a system rather than separate, disconnected steps in an assembly line, using customer satisfaction as the metric by which adjustments to the system should be made. By reorgan-

izing the design process around the customer's voice, Dessert says, manufacturers can cut repair costs, sell surplus cars better and substantially reduce overall costs.

In classes, seminars and daylong workshops, the center's faculty members show students how a small investment in redistributing resources can improve efficiency in ways that shop managers had never dreamed. Lecturers stress the importance of recording and integrating process control data with an eye toward optimizing manufacturing processes. Then, in the lab, students can watch the fruits of their learning unfold, as Steeplechase Software's Visual Logic Controller software runs a model shop-floor assembly line that puts marbles and washers onto wood blocks resembling cars.

Learning experiences like these are designed not only for Oakland University graduate and undergraduate students, but also for employees of manufacturers that partner with the center; an extensive continuing education program is available at night. These are the students who can make an immediate impact on the industry; already, two teams of students from DaimlerChrysler Corp. have turned class-

room principles into results, says Fred Miesterfeld, advance technology specialist of electronic systems at DaimlerChrysler in Auburn Hills, Mich. Last year, employees from a nearby bumper factory saved 40 percent in manufacturing costs after reorganizing the flow of information on the shop floor. More recently, employees from another DaimlerChrysler plant, in Sterling, Mich., used concepts from the PDM Center classes to eliminate redundancies on their busiest factory line and reduce inventory costs by more than \$600,000.

"The fact that these principles saved us money is proof that [the PDM Center] is headed down the right path," Miesterfeld says. "I don't see any other organization developing new concepts and relating them to the current and future employees of this industry like it does. It combines textbook knowledge with experience learning and philosophy. I don't think you can get much better than that."

Indeed, few industry experts argue the effectiveness of the PDM Center's methods, but some have wondered how innovative the organization's curriculum really is. Prouty, the research director for AMR, says many of the center's basic messages are common sense, and he describes the concept of organic process realignment as "good but fairly straightforward." Richard Kraniak, regional manager of Columbia, S.C.-based Integrated Business Systems & Services (IBSS), echoes these sentiments, saying that while he thinks the center is "terrific," most of the tenets it promotes are philosophies that have "circulated for quite some time" elsewhere.

From his seventh-floor office atop Oakland's science and engineering building, Dessert catches wind of these comments—and sur-

"For years, we in the auto industry have pigeonholed our approach to solving problems: IT does this, engineering does this and so on. We needed to find something better."

—Patrick Dessert, director, PDM Center

prisingly agrees. He acknowledges that what he teaches isn't rocket science, and yet, "you'd be amazed how many people say, 'Oh, yeah!' when we tell them they can do a better job of incorporating IT," he says. "People in this industry have never thought of the kind of stuff we're trying to get them to think about. Sometimes, everyone can use a good dose of common sense."

next-generation research

Ah, common sense. Since he founded the center in 1997, Dessert has worked with other Oakland University researchers to use systems engineering principles to develop specific, IT-oriented improvements for auto manufacturing. The first of these research projects is an effort to accelerate the process of custom order fulfillment, an area that for years has held consumers hostage by making them wait for certain preference combinations. All silver Volkswagen Beetles, for instance, come standard with black vinyl upholstery. A customer wanting black vinyl can probably get the car within 24 hours. If a customer wants black leather, however, she has to wait for a factory to run a special order, a process that now takes two to three months.

With the increasing popularity of buying cars online, Dessert believes that custom orders can and should be fulfilled more quickly, and he has launched a rapid order fulfillment project to find out how. During the next few weeks, he says, center researchers will take a look at the systems that process custom orders, the technology plant managers use to decide what to build and how these preference combinations are established in the first place. When they're done, the researchers hope to figure out how a reorganization and perhaps some new enterprise resource planning solutions can streamline the order fulfillment process and enable customers to get customized cars in five days or less.

Another ongoing project is an attempt to cut down the number of warranty claims that the auto industry deals with every year. The PDM Center has developed an artificial intelligence tool to provide accurate estimations of design and warranty details up front, during the design phase of new cars. Written in standard C++ and dubbed Warranty Advisor, the program serves as a memory-resident data structure and interfaces with computer-aided design programs, enabling engineers to immediately plot the conformance of a particular design. If, for instance, an engineer sketches a vehicle with an extreme tow angle (the angle at which a car can tow something else), the program will compare the dimensions with a repository of pre-

vious warranty data, then call attention to the mistake. Because few manufacturers have programs like this, the application could save both time and money for the industry at large.

"When you think about how an application like that could change engineering, it's unbelievable," says Kraniak, the regional manager at IBSS. "Engineers do most of their designing solo, without the intervention or assistance of anyone else in a particular company. To incorporate IT to use technology to integrate data and other valuable information could change the automotive industry forever."

Prouty agrees. "The prospect of artificial intelligence is an attractive one," he says. "Even-tually, it could eliminate quite a number of the inefficiencies in the [automotive] industry, from planning and design to sales and maintenance. People say it will revolutionize things, and it certainly has the capacity to do that. The question on everyone's mind is, When?"

DaimlerChrysler's Miesterfeld anticipates a version of this new technology arriving in his shop soon. As a partner of the center, DaimlerChrysler will be

GPS Jeeps, Next-Gen GIs

ARMY TRUCK INITIATIVE BARRELS
INTO THE NEW MILLENNIUM

ARMY OFFICERS LIKE TO KNOW THE WHEREABOUTS of their soldiers in the field at any given moment. For years, they have accomplished this with walkie-talkies and a whole lot of luck. With the help of Oakland University's Product Development and Manufacturing (PDM) Center in Rochester, Mich., however, soon they'll be able to do it with IT.

The research project, launched early this year, ultimately will fit thousands of military vehicles with Next Generation Electrical Architecture (NGEA) technology. The technology, among other capabilities, links a fleet of vehicles via satellite and enables diagnostic tools to track vehicle performance and location. The PDM Center is partnering on the project with the Department of Defense's 21st Century Truck Initiative.

The program began early this year when James L. Overholt, a senior research scientist with the U.S. Army's National Automotive Center (NAC), approached PDM Center Director Patrick E. Dessert with a plea for help. Army trucks were grossly inefficient, Overholt said. To make matters worse, the fleet was in desperate need of rejuvenation, logging more than 823 million miles last year alone.

"We stepped back and realized our fleet was aging like nobody's business," Overholt says now. "Rather than go about replacing these vehicles blindly, we decided to work with [the PDM Center] to make sure the new vehicles were state of the art."

Last April, Overholt committed \$2.3 million to the center in return for a technology that will enable him to assess the condition of his trucks and enable military officers to keep tabs on which soldiers go where. Today, the PDM Center handles all of the NAC's systems engineering work.

—M. Villano



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able to test Warranty Advisor for free by the end of the year. Dessert says he's considering requests from other auto manufacturers that are also interested in using the application. Eventually, center researchers plan to develop this technology into a commercial tool and sell it to companies across the industry. Dessert is considering launching his own for-profit company to market the application to companies in other manufacturing industries as well, such as aircraft makers and defense contractors.

Between now and then, the PDM Center's top priority is the Next Generation Electrical Architecture (NGEA) project, which was launched last year with a \$5 million public/private grant from six of the center's industrial partners and the U.S. Army's National Automotive Center in nearby Warren, Mich. An effort to develop a vehicle with an interactive, Internet-ready electrical system that rivals KITT from the 1980s TV show *Knight Rider*, this is the project that inspires Dessert to crawl beneath the Jeep Cherokee. Rather than dozens of embedded electrical systems for every little feature, cars with the NGEA will have one voice-operated electrical system that runs everything—windows, odometer, stereo, lights, you name it. A big advantage of the single system is that, instead of having customers wait months for a CD player or a global positioning system, dealers can swap features in and out at the point of purchase, expediting the process and cutting back-end costs at the factory.

"In addition to being downright cool, this is the ultimate attempt to make the industry more efficient," Dessert says.

"Customers have been asking for this kind of technology for years, but because IT and engineering couldn't get their acts together, it never materialized. Finally, through this project, we're making interdisciplinary cooperation a reality."

At the heart of the NGEA is the ability of one electrical function to take over another. For instance, if a driver spills coffee on the power-window controls and short-circuits them, he can reroute that command to another lever—say, the rearview mirror controls or the volume knob on the stereo. The system will also establish constant communication with servers back at the dealer's maintenance shop, so factory-certified mechanics can set up diagnostic software to keep tabs on the vehicle at all times. This could prevent many of the problems related to neglect; if the software identifies subpar performance, it could command the car to fix itself or automatically schedule an appointment for onsite inspection.

In the private sector, Miesterfeld and others expect the NGEA to cut at least \$12 million from automakers' product development budgets each year, at no additional cost to the customer. In the public sector, military officials predict that the technology will enhance

vehicle intelligence, enabling them to determine who's driving what vehicles when and where certain vehicles are at all times. The military portion of the NGEA project composes the U.S. military's entire foray into systems engineering (see "GPS Jeeps, Next-Gen GIs," Page 122). Its lab rat? A beat-up Humvee, donated by the Army.

the road ahead

Most of the time the Humvee is parked beside the white Jeep in a garage at Oakland University's main campus. Some days, when he's itching to let off steam, Dessert climbs in and takes it for a bumpy ride around a nearby golf course. Usually, though, he just tinkers, adding wires to one vehicle and yanking wires from the other. These two vehicles are currently the only trucks on which PDM Center team members can test their latest advances with the NGEA. By October 2001, however, the two vehicles will be

two of many; Dessert plans to have a fleet of 50 vehicles collecting and transmitting data from all over the Detroit area.

This is only the first of a number of big plans. In the center's classrooms, students can look forward to newer, more sophisticated strategies for reorganizing process improvements and the ability to put these strategies into action with virtual-reality factories, later this spring. On a larger scale, university officials confirm that plans are in the works for an entirely new building for the PDM Center: a massive, \$5 million structure where researchers can sponsor symposiums and greatly enlarge their course offerings, which now number four. The new building, slotted

to go up on the southwest corner of the campus, will include 12 new classrooms, a full-size assembly line, a virtual-reality shop floor and a test track for vehicles sporting new technology. Though the plans are not definite, Dessert is optimistic and says the facility could be completed as early as 2003.

Yet with all of these exciting changes down the road, experts and partners are wary of jumping aboard the PDM Center bandwagon all at once. Changing the culture of the auto industry takes time, they say. Miesterfeld, a partner from the beginning, likens the process to getting a flabby body in shape: Just as the soft spots in the industry took dozens of years to develop, so too will these new regimens need time to become ways of life. Dessert himself is realistic: "This isn't going to happen overnight," he says. "Ironically, until cars hit the road, few things in the automotive field happen very fast." **CIO**

Experts and partners are wary of jumping aboard the PDM Center bandwagon all at once. Changing the culture of the auto industry takes time, they say.

Have thoughts on how IT can transform manufacturing? Send them to letters@cio.com. Freelance Writer Matt Villano's first car was a remarkably low-tech 1991 Plymouth Voyager. Based in New York City, Matt can be reached at mjv@whalehead.com.

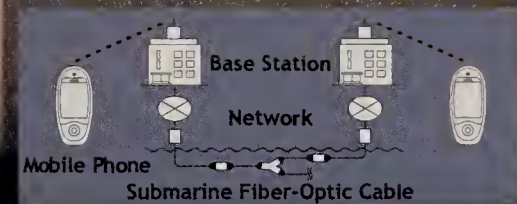
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The Symposium program explores innovation as the key to future change, growth and success. And who better to moderate our discussions and talk to us about "Innovation in an Age of Creative Destruction" than Paul Saffo, Director of the Institute for the Future? Paul believes that technology doesn't drive change - it merely enables change. It creates new options and opportunities that we choose to exploit. To him, it is our response to technology that drives innovation and change.

Joining Paul on the main stage will be Geoffrey Moore, Danny Hillis and John Seely Brown. At last year's Symposium, Geoff shared some of the material that culminated in his book, *Living on the Fault Line*. He returns this year to discuss what lessons he's learned as a result of his initial engagements with *Fortune* 2000 companies. Danny Hillis, co-founder of Applied

Minds and former Vice President and Disney Fellow of the Walt Disney Company, is uniquely qualified to address "Creativity and Technology." And nothing less than "The Transformation of Society" is the topic of choice for scientist-artist-philosopher John Seely Brown, Director of the Xerox Palo Alto Research Center.



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BY BEN WORTHEN

M

You know your employees want more training, but how can you tell if you are getting your money's worth?

Measuring the ROI of training

Reader ROI

- ▶ Learn how an ROI study can help improve your IT training
- ▶ Understand the steps involved in an ROI study
- ▶ Find out why it is important to measure skills in your organization

No one would open a new office, roll out a new application or even hire a new employee without knowing—not thinking, not guessing, not wishing and hoping, but knowing—they were getting something back. To do otherwise would be bad business. But in the area of IT training, it happens all the time.

The Information Technology Training Association estimates that there are 10 million IT workers in the United States who, according to Stamford, Conn.-based Gartner Group, each cost companies more than \$2,000 a year on training. That's more than a \$20 billion dollar market. And in most cases, the justification for spending all that dough is nothing more than the offhand assertion that, yes, employees really like training.

While keeping employees happy in this tight labor market is justification enough for many things, the bigger problem remains: Companies need to be accountable for every dollar they spend. According to Brandon

Hall, a Sunnyvale, Calif.-based learning consultant, there is no other workplace issue on which so much money is spent with as little accountability as training. So far, IT training has managed to fly under the radar, but increased shareholder scrutiny combined with the growing need for training in companies means this is about to change.

Fiscal Responsibility

A 1998 survey by the American Society for Training and Development found that while the importance of IT training has increased in 90 percent of the companies surveyed, only 68 percent predicted their IT training budget would increase as well. Therefore, the only way to meet growing training demands without dramatically increasing your budget is through more effective training. And the most precise way to measure and improve the effectiveness is through a return on investment analysis of training programs.

Allan Wood, CIO, Mellon Financial, used an ROI of training analysis to lower staff attrition.

115 mm



235 mm

Mellon Financial designed a training program aimed specifically at reducing staff turnover. Through constant analysis and improvement, it dropped its attrition rate from 20 percent in 1997 to 12 percent in 1999 and 10 percent in 2000.

Because there isn't much incentive to conduct an ROI study if a training program will be approved without one, it is up to the CIO to require employees to justify a training program before he dedicates a slice of the budget to it, Hall says. "If you have poor accountability in your organization, you are wasting money all over the place," he says. "But you can bring good business metrics to this area, and you can do good studies on the business case for training to make sure your company is getting good ROI on it."

The Importance of ROI

Allan Wood, CIO of Mellon Financial in Pittsburgh, has sampled this wisdom firsthand. Like at most companies, employee turnover was a large problem for his IT department. "We knew that there was a significant cost in technology staff turnover—both in quantifiable terms and in softer terms," he says. "It is the cost of recruiting, the cost of bringing the technologist on board, the loss of productivity during the learning stage, but also [costs in] some of the softer [areas] like morale and continuity issues." Mellon designed a training program aimed specifically at reducing the turnover and, through constant analysis and improve-

ment, dropped its attrition rate from 20 percent in 1997 to 12 percent in 1999 and 10 percent in 2000.

But what Mellon accomplished is not easy, as conducting an ROI of training calls for stringent goal setting and continuous analysis. Mathematically, ROI is a comparison of benefits to cost expressed as a percentage of the original investment. In simpler terms, it is a way of finding if the training met its goals to an extent that justified its cost. According to Greg Wang, director of strategic management for DPT Consulting in Bala Cynwyd, Pa., an ROI study seeks to justify and improve a training program as well as to devise an overall training strategy. There is a misconception that ROI should be left to mathematicians with glasses thick enough to peer through a haze of regression models and partial derivatives. That perception of complexity has deterred many from attempting ROI studies. But, in fact, doing a training ROI is just a fancy way of doing cost-benefit analysis.

And not conducting an ROI analysis of training can cost your company valuable input that's necessary for improving results. For example, at Lima, Pa.-based Pilot Air Freight, there is currently no mechanism for measuring ROI. Gene Malcolm, Pilot's senior vice president of administration and information systems, fears that his company's failure to implement such a measurement has cost the organization the opportunity to hire and train candidates with entry-level skills to replace departed employees, rather than paying contractors as much as \$250 an hour to make up the staffing shortage. "If we knew X dollars were being saved by doing this amount of training," says Malcolm, "we might be more apt to go out and hire additional resources now and get them that training." Pilot recently added three new IT employees. But maybe, says Malcolm, Pilot would have had a better return by spending its budget on hiring and training six workers with fewer skills and less experience than these highly paid new employees.

Electronic retailer QVC, located in West

Gene Malcolm, senior vice president of IT, Pilot Air Freight, says that doing an ROI of training is the only way to improve results.



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Training

Chester, Pa., launched such a program last year. The IT department needed to fill eight open positions, and rather than fill them from the outside—its typical practice—it invited employees from across the company to apply for the openings. QVC selected eight employees from the 150 applicants and enrolled them in an extensive eight-week training program covering, among other things, database design, Visual Basic, structured query language and HTML. An ROI study in which the training and productivity costs of the eight employees were weighed against traditional hiring costs found that the cost of training was less than the recruitment costs and the higher salaries outside programmers would have demanded. “We can bring consultants on to write code in a crunch, but we can’t bring in people who know QVC,” says QVC CIO John Link. “We are expecting these people to be high achievers in their career, and we expect them to be very loyal to QVC.” This year the program has grown to 14 employees—well over a third of QVC’s overall IT hires for the year.

Just because a program succeeded at one company, it won’t necessarily work at another; ROI measures too many factors that are unique to the company.

“It’s a pain,” admits Hall. “And that’s

why people hardly ever do it.” ROI analysis requires an in-depth understanding of your company’s strengths and weaknesses, strategies, and extensive goal setting. Plus it takes time.

With this in mind, Jack Phillips, vice president of Jack Phillips Center for Research (a division of Franklin Covey), based in Birmingham, Ala., suggests that a complete ROI study is appropriate for only about 10 percent to 20 percent of training programs. For instance, if you’re rolling out SAP, it’s obvious that you need to train your IT staff on it. Therefore, doing an ROI process would be pointless. Similarly, analyzing the returns on a presumably low-cost noontime stress reduction seminar probably isn’t worth the effort. On the other hand, a good candidate for an ROI study, says Phillips, is a training program that “probably has a very long life cycle, is very closely tied to operational goals, strategically focused, very expensive and has a high visibility.”

ROI 101

Because ROI requires measurements before, during and after training, finding the ROI of a particular training program is not a discrete event but should be part of an ongoing process. The focus on pretraining measurements also helps align a program with the overall IT strategy. “The first step has got to be to identify my IT needs and goals,” says Martin Bean, president of ProMetric, a Baltimore-based skills assessment organization. “Then what I have to do is compare my existing workforce and the skills that they have got to these goals.” A well-planned training program, he says, should be designed to close the skills gap—and an ROI

Because ROI requires measurements before, during and after training, finding the ROI of a particular training program is not a discrete event but should be part of an ongoing process.

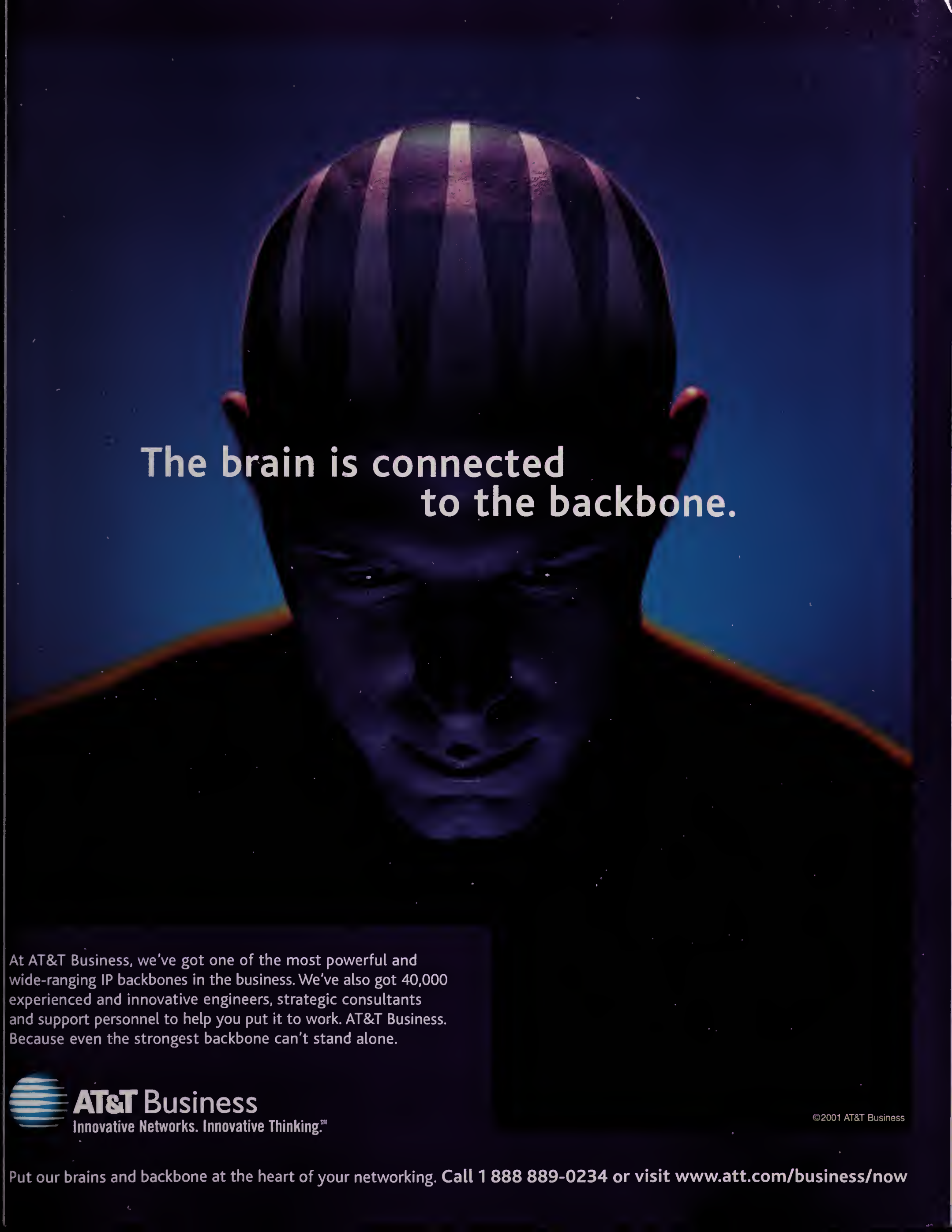


QVC CIO John Link says an ROI study led his company to beef up employee training rather than hiring outside programmers.

study is the only way to measure that.

To be certain that the training—and not random, external factors—is responsible for closing the gap, the effects of the training need to be isolated. The easiest way to do this is to measure a behavior in a group of employees before training and again after training. For example, a large financial company that DPT’s Wang worked with had a high turnover rate. A survey of departed employees found that the reason most left was dissatisfaction with the level of training. To address this, the company implemented a skills development program that averaged 80 hours a year per employee. The ROI it was looking for was a decrease in turnover that would represent a savings greater than the cost of the training.

First the human resources department measured the average turnover rate—23 percent per year—and then calculated the cost of training its 100-person IT department. The average employee wage was \$35 per hour, so 80 hours of training for 100



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people would cost \$280,000. Instructors, classrooms and other costs brought the total to \$450,000. The ROI calculation showed that the company reduced turnover by 8 percent, saving \$453,000 in related costs for new hires. Ultimately the company used the ROI to reduce training hours because the data showed that employees were actually receiving too much nonproductive, expensive training hours and that less time spent in more focused training actually yielded better results.

While the CIO needs to take the initiative by requiring the ROI study, the task itself can be left to a staff member or, depending on how thoroughly a company wants the study conducted, to an outside consultant. Either way, the CIO will have important data with which to make decisions on current and future training programs.

Here are the five steps the financial company followed to determine the ROI of its training program:

1. Measure the initial reaction to the training. This is the first and most basic level, usually involving a post-training survey

assessing the quality of the class. In the case of the financial company, the employees were asked if the material was easy to follow, if the instructor was familiar with the subject matter and if the facility was conducive to learning.

2. Analyze the learning. There are a number of ways to do this, such as testing, simulations and instructor evaluations. What matters most is finding out if the employees actually absorbed the class content. These first two steps are early indicators. Without positive feedback and good marks on the testing, a positive ROI is unlikely.

3. Analyze the skills gained over the long term. The goal of this step is to assess whether on-the-job behavior changed after the training. This data should be collected over a longer period of time. In the example cited by Wang, the year after the training was put in place, turnover dropped 8 percent, giving the company a tangible measure of the training's effectiveness. During this phase, data is also gathered on how participants have used their new skills.

Phillips says this skills analysis can yield

valuable data on what worked—and what didn't—in a training program. "Level three is some of the most valuable data you have," says Phillips. "If they are not using the skills, we want to find out why. And there we may see disconnects with the environment, lack of support, maybe the wrong skills; it might not be what is needed at this time."

4. Measure the business impact. This step of the ROI calculation determines the monetary value of the measured change. In the example of the 100-person IT shop cited by Wang, an 8 percent turnover reduction is eight less employees to recruit, train and bring up to speed—a cost of \$56,625 per new hire. As a result of the training regimen, the company saved \$453,000.

5. Analyze the actual ROI. This phase is really just another way to express the business impact, this time taking into account the program's cost. In our example, the training cost \$450,000 while yielding \$453,000 in benefits. To find the ROI, we take the benefits and subtract the total cost, and then divide the result by the total cost. Multiplying this number by 100 yields the ROI percentage. In this case the ROI is .67 percent, or, to put it another way, for every dollar spent the company returned one dollar and two-thirds of a cent.

That's a positive ROI, but hardly the vast savings the company expected. However, just doing the ROI calculation isn't enough; you have to use the information to make adjustments. In this case, the analysis showed that the lowest turnover rate was among employees who trained 60 to 70 hours annually, and that the turnover rate actually increased for employees with less than 50 or more than 80 hours of training. In other words, not only was it possible to not provide enough training, it was also possible to overwhelm the participants with too much training. Thanks to this data, the CIO decided to reduce training to 64 hours a year, thus cutting costs.

In this case, the CIO used the data to make an informed decision to change the program. And the result was a more efficient and cost-effective training program.

Pop Quiz

Is your IT organization a candidate for an ROI study? Before conducting an ROI of your department's training program you should answer the following questions.

1. Are you responsible for your training budget?
2. Is there a wide variety of training programs in your IT organization?
3. Do you have high employee turnover?
4. Does your company culture accept measurements?
5. Has your IT department ever experienced a training disaster?
6. Does your IT organization compete with other functions for resources?

7. Is your IT organization undergoing significant change?
8. Is your IT training linked to the company's strategic direction?
9. Do you have a low investment in measurements and evaluations?
10. Is there pressure on your IT organization to take more accountability for its budget?

If you answered yes to more than one of these questions, then an ROI study may be a good idea for your IT organization.

SOURCE: JACK PHILLIPS, PRESIDENT OF PERFORMANCE RESOURCE ORGANIZATION

A full-page photograph of a cowboy in a blue and white striped shirt and a white cowboy hat, performing a calf roping maneuver in a rodeo arena. The cowboy is upside down, holding a rope that is attached to a calf. The background shows a blurred crowd of spectators in bleachers.

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Given the shortage of IT skills in the marketplace and employees' demands to keep their skills fresh, failing to measure the effectiveness of training programs is a sure way to cripple an organization.

Online Learning

One way many companies have realized significant training cost savings is through online learning. Electronic learning accounts for only a small part of training today, but that is changing. Framingham, Mass.-based IDC (a sister company to CIO's publisher, CXO Media) sizes the online learning market at \$2.2 billion but expects it to grow to a staggering \$11.4 billion by 2003.

General Electric is one company going for online training in a big way. In 1998, GE analyzed the efficiency of an orientation course aimed at GE Aircraft Engine customers that required them to travel to GE's Cincinnati headquarters. The course lasted for three days and cost the company \$47 an hour in lost productivity per customer and \$1,500 for travel and living expenses for those [customers] flown in. In addition, the training facility needed to be upgraded at a cost of \$4.5 million. But rather than do this,

GE decided to implement an online version of the training.

An ROI of the online course revealed that employees were able to absorb the same amount of learning as in the onsite training and were able to do this in only three hours versus the three-day course. So the company was able to reduce the amount of time employees spent away from their jobs as well as save money on travel costs.

Russ Mayer, vice president and CIO, e-business and technology solutions, of GE Aircraft Engines, says the online system did lose some effectiveness because of the lack of

in-person, face-to-face training but that "the cost savings way make up for it."

In fact, the savings were so substantial that GE CEO Jack Welch announced last August a corporatewide plan to move 50 percent of all GE's training online by the end 2001. At GE Aircraft Engines, the IT department has taken on a challenge to reduce its training budget by \$100,000 by replacing traditional classroom training with online learning. "Using technology is a key way that we take cost out of the business," says Mayer. "But it's not just taking cost out." Because online learning eliminates days on airplanes and nights in hotels, "we're looking at this as a key job satisfier so that we don't have people missing time with their families."

Another Weapon

While measuring the ROI of training won't fix all of an organization's training and budget problems, it is a powerful tool that should be in every CIO's toolkit. It is an important part of being accountable for your own training budget and for gauging its effectiveness. By finding out how much the IT department is spending on training and then measuring the benefits, both hard and soft, a CIO can not only free up money for other uses, but he can also ensure that the programs are in line with the company's overall strategy.

Given the shortage of IT skills in the marketplace and employees' demands to keep their skills fresh, failing to measure the effectiveness of training programs is a sure way to cripple an organization. "A CIO has to be very aware of training," says Mellon's Wood, "because the people in the organization need to know that it is something that the CIO knows about and cares about." And doing an ROI of training is one of the best tools a CIO has to ensure the quality of the training being delivered. **CIO**

Has ROI solved any training problems at your organization? Staff Writer Ben Worthen would like to know. E-mail him at bworthen@cio.com.

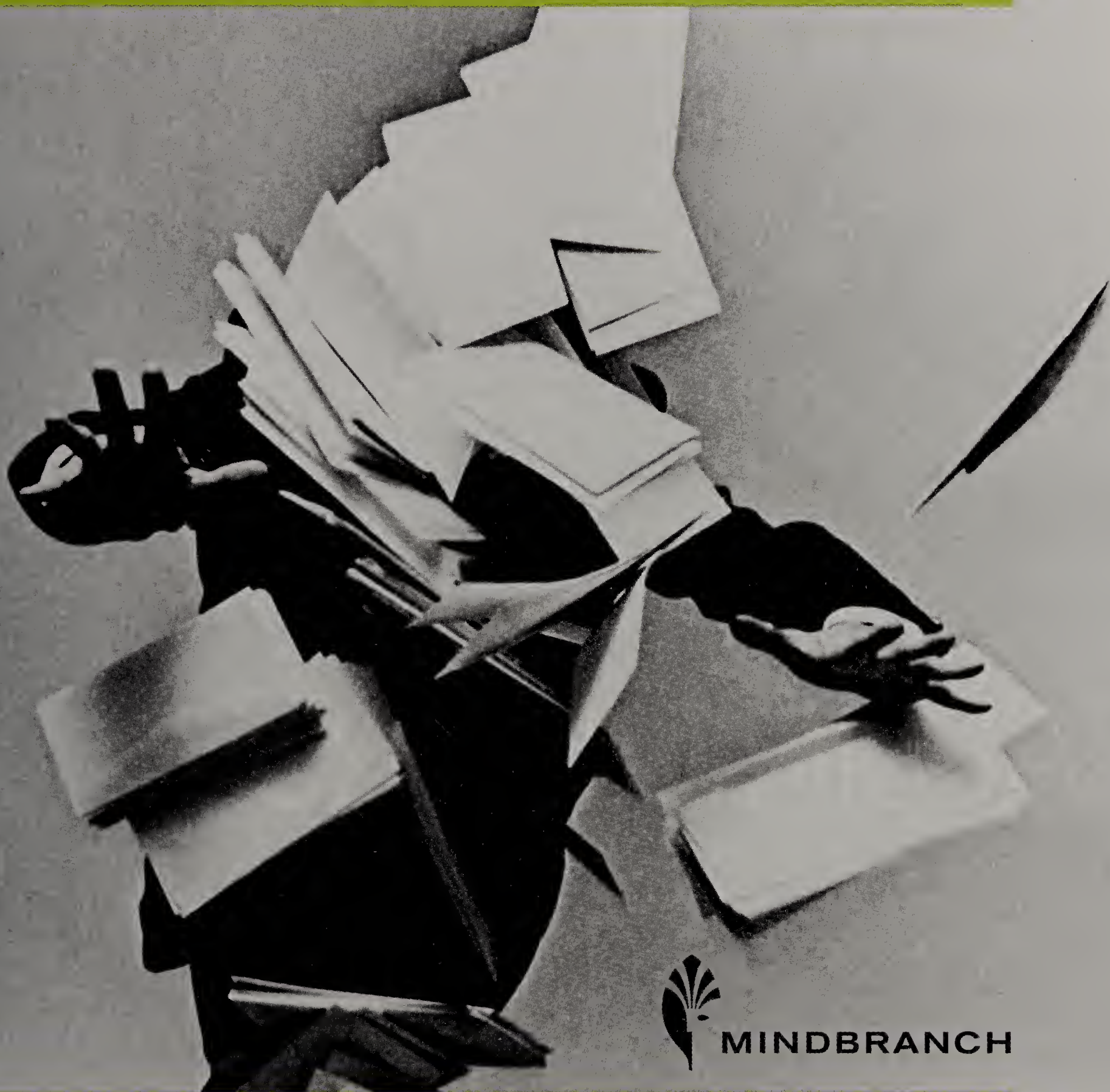
Russ Mayer, CIO, GE Aircraft Engines says online learning keeps people from "missing time with their families."



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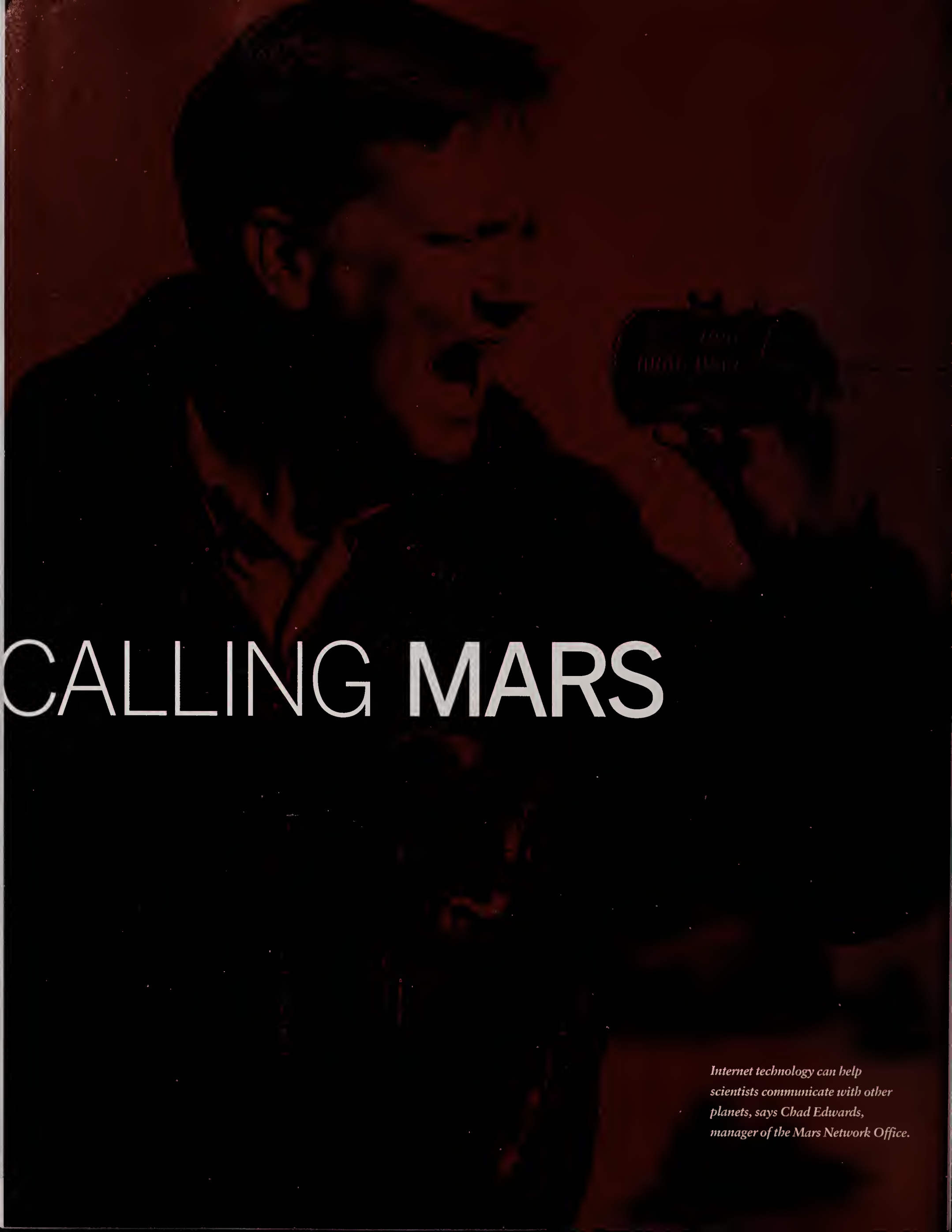
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CALLING MARS

Internet technology can help scientists communicate with other planets, says Chad Edwards, manager of the Mars Network Office.

IT on Mars: Government **scientists** aim to build an **Internet** to the planets

MARS, WITH ITS WIND-SCULPTED SURFACE AND possibilities of ancient life, has always held deep fascination for humans. Ever since the first Viking spacecraft landed there a quarter century ago and sent back the first pictures of the martian landscape, that fascination has only deepened. In 1997 the Mars Pathfinder became the latest visitor to land there successfully, enchanting the public at home with a series of visually stunning panoramic shots that have whetted the appetite for future and more extensive exploration of the red planet. ■ What the public didn't know was just how difficult those shots were to engineer and to get back to Earth. The Pathfinder could send data at an average of only 30 megabits a day, meaning one panorama could take many days to relay. ■ That just doesn't cut it for the kind of work that scientists at the Mars Network

BY KAREN D. SCHWARTZ

Reader ROI

- ▶ See what plans the government has for communications on the final frontier
- ▶ See how these plans could revolutionize the way space research is conducted
- ▶ Find out what it could mean for life out there as well as here on Earth

Office—a federally funded outfit associated with NASA and the Jet Propulsion Laboratory—want to do next. To achieve their ultimate goal of discovering whether there is, or has ever been, life on other planets, scientists need to significantly improve communications between Mars and Earth.

This year, the Mars Odyssey orbiter will carry, in addition to its suite of science instruments, a telecommunications relay package that will provide support for a 2003 mission that will land two rovers to roam Mars' surface. The rovers will perform sophisticated scientific experiments, such as collecting soil samples and analyzing them at the scene. A second mission planned for 2005 calls for a Mars reconnaissance orbiter that will include a camera capable of capturing images on the planet's surface that are only 20 centimeters wide. Then, in 2007, NASA will collaborate with the Italian space agency to send an orbiter that will be the first to have telecommunications as its primary function. Ultimately, we could see a spaceborne Internet that could revolutionize how people work in outer space, just as the Internet is changing our more prosaic Earth-bound life. Chad Edwards, manager of the Mars Network Office, talks about taking a major step forward in space exploration that could also have implications for how we use the data gathered from interplanetary visits on Earth.

CIO: What are your long-range plans in terms of telecommunications?

Edwards: We'll get our first experience using relay links with the 2003 rovers, and for 2007, we have proposed a dedicated telecom orbiter that would be a partnership between Italy and NASA. That will be the first time we'll have a dedicated orbiter, so we'll be spending a lot of time during the coming year with our Italian colleagues trying to decide the best way to use that capability. We have studied a number of potential mission concepts for dedicated telecom relay

Researchers want Mars rovers and science laboratories to send data back to Earth more quickly.



WE'D LIKE A ROVER ON MARS to have its software decide to deliver a file to wherever it needed to on Earth without worrying about the bits and bytes.

orbiters with capabilities up to 1Mbps continuous data rate from the surface of the planet back to Earth, or about 85 gigabits of data per martian day. That represents a more than three orders of magnitude increase in data return relative to the Mars Pathfinder mission. A gigabit will give you a pretty decent panorama or allow you to send streaming video back to Earth with very good fidelity.

Other than bandwidth, what else are you working on that will allow better communications with the Mars landers?

Extending the Internet to Mars. By doing so, you can better ensure that all of your data gets to its destination without being compromised. We'd like a rover on the surface of Mars to be able to have its software autonomously decide to deliver a file to

wherever it needed to on Earth without worrying about the bits and bytes. In the past, you had to worry about moving bits from one computer to another and how those bits would be formatted, but this way you can send files and the IP stack deals with all of the issues related to getting that file from point A to point B.

How can you accomplish this?

We're working on developing a layered architecture that would allow us to move data from point to point without worrying about the fine details. That way, as new technologies come along, we'll be able to make changes to the underlying physical infrastructures without disturbing the protocols that are already in place. So we'll have a layering of how we flow information across some infrastructure that lets us evolve

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it in time and accommodate technology infusion without having to scrap our investment. Eventually, we envision a bunch of local Internets that are just like Earth's Internet, scattered around the solar system, and "trunk lines" that would have customized deep-space link protocols to connect them.

computers, having small amounts of latency between nodes and dealing with network traffic congestion as opposed to bit-error rates. For our deep-space links, we're dealing with many issues that can cause the IP stack to break down, like a lot of latency, intermittent links and high bit-error rates

Internet led by Adrian Hooke, manager of NASA's space mission operation and standardization program, and Vint Cerf, one of the fathers of the Internet, that addresses this issue. The goal is to look at how you could seamlessly extend the current Internet to accommodate the deep-space links.

WE'D ALSO LIKE TO EXTEND the Earth's Internet to include other planets. The next planet we'll probably attempt to connect to is Jupiter and its moon Europa.



So we're not talking about the Internet as we know it today, right?

Right. The basic IP stack for Earth's Internet was built for Ethernet-connected networks or computers. It is characterized by always being connected and having extremely low bit-error rates, having very reliable Ethernet or fiber-optic connections between

because of very low signal strength. We can encounter latency approaching more than 30 minutes on the link from the orbiter back to Earth, for example. We borrow a lot of the concepts of Earth's Internet but come up with protocols that will work in this deep-space application.

There is an effort called Interplanetary

Clearly there is a lot of work to be done. What's really possible?

Developing relay links that increase the amount of data we get back from Mars. Those links will allow us to have small

landers on the surface of the planet that can relay their data back through an orbiter and get that information to Earth. We'd also like to extend the Earth's Internet to include other planets. After Mars, the next planet we'll probably attempt to connect to is Jupiter and its moon Europa, which has signs of a liquid ocean underneath the frozen ice cap. One of the things that has driven the search for life on Mars and our understanding about life on Earth is that, where there is water, there is life.

What do you consider a long shot in terms of future capabilities?

Nothing is a long shot. It's just a question of how fast things will happen. One thing that really excites me is the idea of a stationary spacecraft that would hover above a lander just like an Earth geostationary satellite. That opens the door to being continuously connected with the landers on the surface at very high data rates. I don't know whether we'll get there this decade, but it's a capability that would increase by three orders of magnitude our data return relative to Pathfinder, which would change everything about the way we interact with those spacecrafts.

When the Mars network is finished, what will it look like?

I'd compare this to asking, "When the Internet is finished, what will it look like?"



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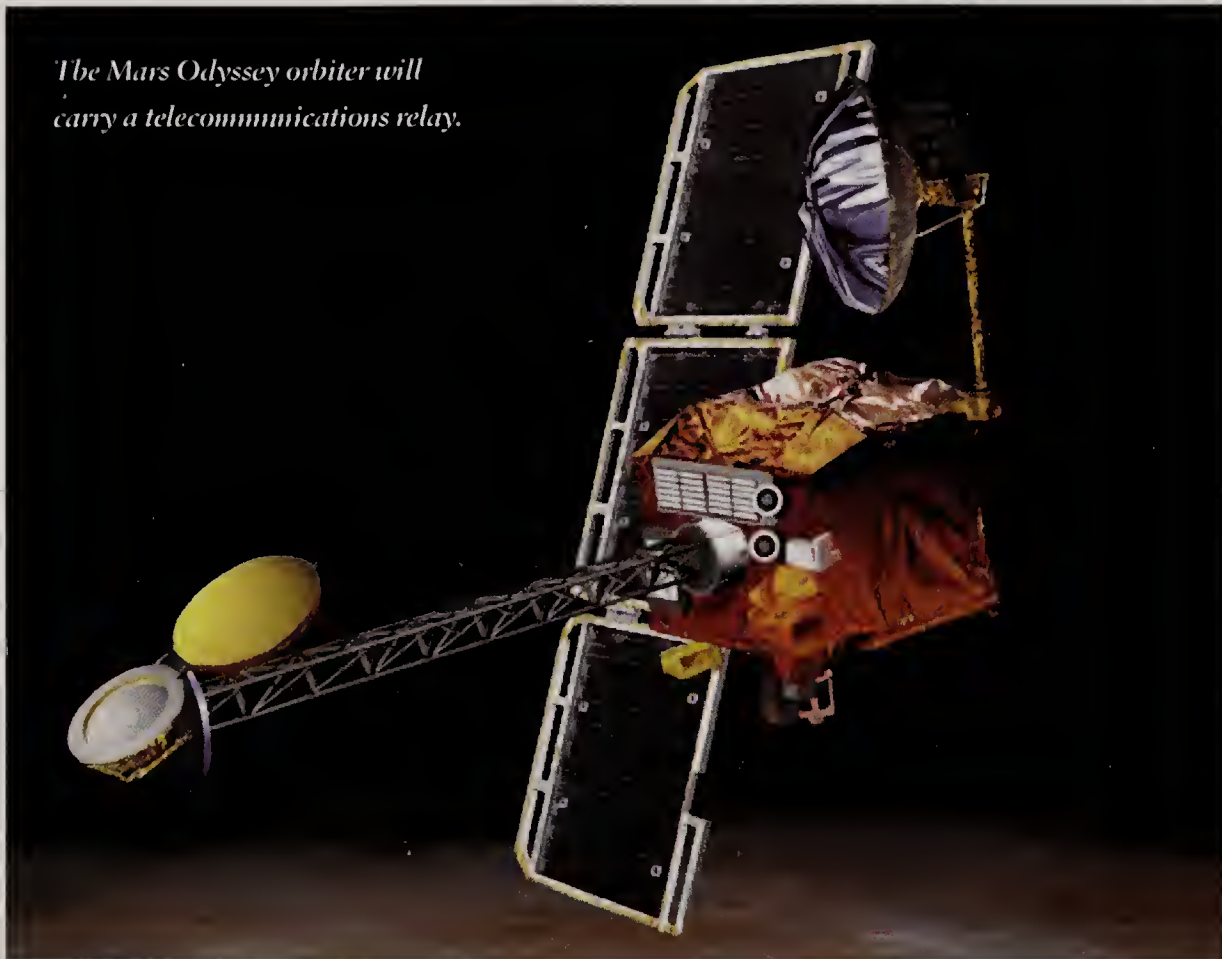
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The Mars Odyssey orbiter will carry a telecommunications relay.



BUSINESSES COULD BUILD a software model of the martian environment to allow anyone to be a virtual astronaut. You could step into this environment and explore it yourself.

Our current strategy is an evolutionary one, where we work to understand the communications needs of our future missions and the technological capabilities that can be brought to bear in meeting them, and then devise a cost-effective strategy for deploying those capabilities.

This is great stuff, but it's complicated. Does the Mars exploration mission need a CIO?

Mars exploration is an international activity. The European and Japanese space agencies will each have an orbiter arriving there in the 2003 time frame, and the French and Italian space agencies are also interested in sending orbiters. We want to use their orbiters for relay communications, and they want to use ours. Dealing with other countries, developing standards and achieving interoperabil-

ity will require someone to lead the effort, and a CIO makes a lot of sense to coordinate the effort, forge alliances and keep on top of the technology. To some extent, that's my job. I try to lead that type of interaction with our foreign partners to make sure we achieve standardization.

What can we learn from this research to help us deliver satellite-based communications such as the wireless Internet we have on Earth?

There is no way you could justify what we're doing on Mars because it's going to lead the way for solving the problems on Earth. But this is an interesting communication problem that will fuel a lot of creative thought. I see information flowing from both the terrestrial wireless community into our solutions and vice versa.

How about other types of applications? What could your research contribute?

There are a lot of potential applications. One of the simplest is "Mars TV." Imagine that you set down a rover with multispectral imagers and cameras and that bandwidth was no object. You could just start sending back a stream of video from the surface of the planet and provide Mars TV. Businesses could also use the streaming video to develop entertainment applications. They could build a software model of the martian environment and combine it with visual and tactile sensors to allow anyone to be a virtual astronaut. You could basically step into this virtual martian environment and explore it yourself.

Could there come a day when astronauts or colonies of people living on Mars could communicate with Earth in real-time?

Earth-Mars communication is possible, but I don't think we're going to change the speed-of-light constraints. We don't know of a way today to convey information between Earth and Mars at a speed faster than the speed of light. [It takes light six to eight minutes to travel the round-trip

distance.] We don't foresee a way to get rid of the latency in the communications. The advanced communications will be there, but the latency will also be there. You can't use a joystick from Earth to command a robot on Mars. That robot has to have a lot of autonomy to take care of itself on time scales of up to an entire day. As we achieve better and better communications, we can shorten that time to ultimately the round-trip light time where we could be interacting with these robots on time scales of tens of minutes. But once we have humans on Mars, they will be able to interact with those robots with effectively no latency. That's a big incentive for getting people to Mars. **CIO**

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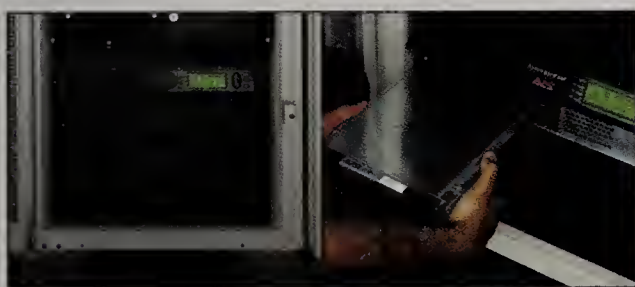
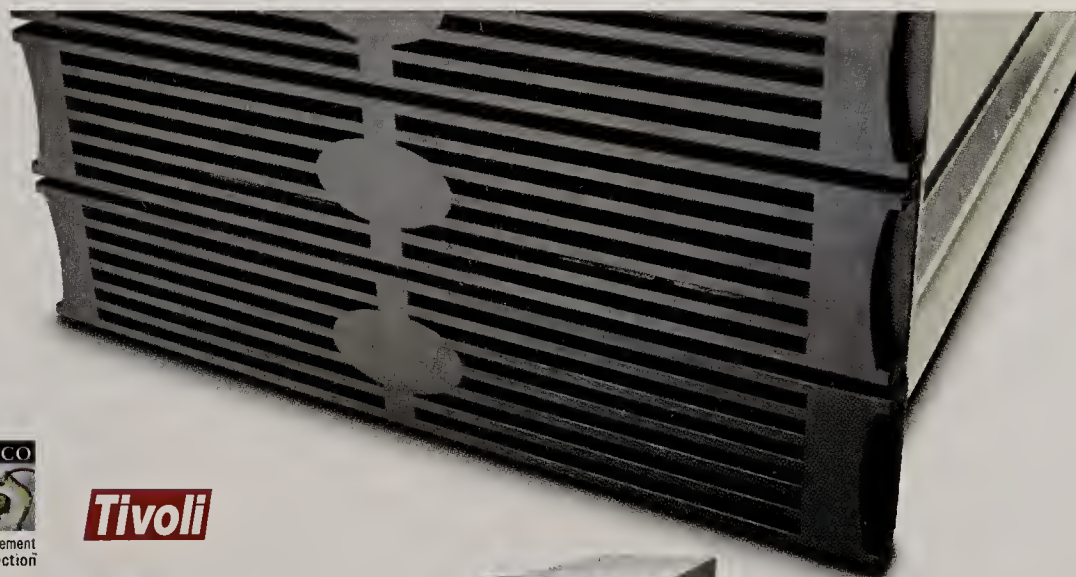
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CHANNEL

Instead of creating channel conflict, e-commerce has led

SecureRite.com, Clark Security Products' online venture, boosts collaboration between Clark and its distributors, says COO Glenn Younger.

WHEN POLAROID first floated the idea of a B2B website for its commercial imaging customers, company execs began talking about how Polaroid could use e-commerce to cut out its dealer channel. Eliminating trading partners, proponents of the B2B site argued, would give Polaroid more control over how its products were sold and, better still, pad profits by absorbing the dealer markup. Yet once Polaroid e-commerce managers started factoring in costs for things like inventory management and logistics, the math just didn't add up. Polaroid was no more equipped to ship, bill and service products

Reader ROI

- ▶ Find out why disintermediation didn't happen
- ▶ Learn how companies have reflowed distribution channels in the wake of e-business
- ▶ Understand how new types of online entities compete with dotcoms

PHOTO BY MARK ROBERT HALPER

CROSSING

dealers and vendors toward new forms of cooperation BY BETH STACKPOLE

E-Commerce

than its dealers were to manufacture photographic goods.

"In a matter of weeks, we realized we were not going to do a wholesale channel disintermediation," says Jim Barron, vice president of Internet development at Cambridge, Mass.-based Polaroid. "The reality of having to bill and ship goods is what we really had to think through. We quickly realized that whatever margin we'd recover from disintermediating the channel would be eaten up quickly" to cover those costs.

Instead of excluding dealers, Polaroid embraced them. Last June, the company launched PolaroidWork.com, a site for commercial customers that delivers information and demonstrations on products such as film, cameras and digital imaging equipment. Customers don't actually close a transaction over the site. Instead, they use it to comparison shop, and a dealer locator capability provides maps and directions to three local dealers where products can be purchased.

Some business customers do want to buy online, however. For them, Polaroid used the Web to reflow its dealer channel. Polaroid accredited about 20 of its top U.S. dealers to support a "Buy Now" capability—essentially a hot link on the PolaroidWork.com site that takes customers directly to the dealers' websites for completing the transaction.

Already, the Buy Now function on PolaroidWork.com has translated into about three or four sales a week for Bernie's Photo Center, a Polaroid distributor in Pittsburgh, according to Bernie's president, Bruce Klein. Klein says he's not surprised that Polaroid and other manufacturers like Eastman Kodak and The Global Olympus Group are exploring programs to bring the dealers into the e-commerce loop. "It's always in their best interest to keep the dealer structure and distribution the way it is," he explains. "They don't want the headaches of dealing with individual sales—someone giving a bad credit card or a shipping address going bad. Polaroid is a manufacturing company, not a direct-sales company, and they realized that off the bat."

Polaroid seems to have hit upon a win-win proposition that is increasingly resonating with Net businesses. Although many early e-commerce initiatives flirted with bypassing long-standing channel relationships, the focus has shifted to finding ways to empower part-



The Internet has strengthened 4Point Access Control's channel relationships, says Med Mosher, co-owner of the lock shop.

ners and make them an effective piece of a company's online sales operation. Often this means rethinking the structure of channels and re-creating them to make the best use of the Web. A year or so into the online game, companies are realizing that creating and marketing a Web storefront for B2C or B2B commerce is the easy part of the equation. The other key pieces, customer service and fulfillment, are a whole new ballgame for companies—one most are not fully equipped to handle.

Far from being disintermediated out of existence, distribution channels remain essential, but they need to be updated for the Internet age, says Dan Garretson, a senior analyst with Forrester Research, a market research company in Cambridge, Mass. "Most industries are finding that the [distribution] channel actually serves a valuable role, and the issue is now what changes have to be made

A vertical collage of 12 images showing various people in professional settings. The images are arranged in a single column, each depicting a different individual in a work environment. The subjects include men and women of various ethnicities, some wearing suits, others in business casual attire. They are engaged in different activities: some are looking at laptops, others at tablets or smartphones, and one is wearing a headset. The backgrounds vary, showing office interiors, outdoor settings, and close-up shots of the individuals. The overall theme is professional diversity and productivity.



A vertical collage of five images. From top to bottom: a laptop screen displaying a website; a close-up of a woman's face; a hand holding a black mobile phone; a person lying in a hospital bed with medical equipment; and a close-up of a man's face.

CRM

A vertical collage of five images. From top to bottom: a laptop screen displaying a website; a close-up of a woman's face; a hand holding a black mobile phone; a person lying in a hospital bed with medical equipment; and a close-up of a man's face.

People power the internet.™

A vertical collage of five images. From top to bottom: a laptop screen displaying a website; a close-up of a woman's face; a hand holding a black mobile phone; a person lying in a hospital bed with medical equipment; and a close-up of a man's face.

and what has to be done to have the channel better support them,” he says. But that’s not to say a vendor can afford to let its upstream manufacturers do all the work. Channel partners that don’t reinvent themselves to become more efficient and add value are always in danger of being cut out. “Refining roles is where the conflict now lies,” Garretson says. “If an activity is not adding value, it will ultimately go away.”

Companies are exploring a number of ways to pump up and realign channels in the wake of e-business. One of the easiest and most prevalent moves is offering dealer locator services online. These give customers the option of getting hands-on support from a local entity, if desired. In some cases, the dealer locator apps award the selected channel partner with a percentage of the transaction even if it didn’t participate in the sale. On the marketing front, companies like SecureRite.com and Kawasaki Motors are teaming up with distributors on websites that help drive traffic to local stores and their individual websites. Helping less tech-savvy channel players build websites is another way companies are lending a hand. And some companies, like General Motors, are going so far as collaborating with their channel partners to create new online ventures that can compete with dotcoms.

“It’s next to impossible to find any company jumping off a cliff and saying ‘We’re laying our reseller relationships on the altar of e-commerce,’” says Simon Yates, an analyst at Forrester Research.

Kawasaki’s website is “a no-lose proposition” for dealers, says Terry Adams, owner of Adams Motorsports Kawasaki.

“Manufacturers don’t know how to deal with consumers in a B2C or B2B world. That’s why there’s such a deep relationship with the channel. So disintermediation happens first, and then things get re-intermediated again.”

STILL IN GOOD HANDS

It didn’t take long for Allstate Insurance to understand the value of its 13,000-strong agent channel for online sales. But the Northbrook, Ill., insurance company did give serious consideration to selling directly to customers online in the very early stages of planning its e-business initiative. The Allstate strawman project, code-named Yikes.com, was entertained briefly as a way to use the Web to garner efficiencies in selling insurance products. Allstate got a scare, however, as soon as it started talking to customers, says Steve Groot, president of direct distribution and e-commerce at Allstate Insurance. While customers were bullish on using the Internet to purchase Allstate products, they were adamant about having a real, live person as part of the process to help them with decision making, particularly when it came to life, property and car insurance. In addition, the company would have had to spend millions to create a new online brand, and there were concerns that such a move would harm Allstate’s carefully cultivated brand recognition.

When Groot’s team actually sat down to do the math, disintermediation turned out to not make much business sense, either.

“Selling insurance directly over the Internet wasn’t something we could offer at a substantially different price level,” Groot says. “In the cost of personalized insurance products, there’s not a lot of distribution cost relative to the total cost of the product, so there’s not a lot to disintermediate.”

As a result, Allstate settled on an integrated strategy that would let customers shop for insurance the traditional way via local agents or through more modern conveniences like an Internet site and a call center, both of which are available 24 hours a day. “When you say Allstate, people think of agents first. We didn’t want to do anything that would upset what the customer visualized as the value proposition,” says Groot, the executive sponsor of the call center and Internet direct initiatives. “Now we’re presenting to the public both a clicks-and-bricks presence, and agents are



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Through Allstate.com, which began rolling out on a state-by-state basis in May 2000, customers can research, get quotes and purchase automobile and property insurance online. Customers are prompted to pick a local agent if they are familiar with one; if not, the system automatically assigns an agent to the sale and allots him a service commission on the transaction—regardless of the agent’s input. In addition to the financial rewards, agents can leverage the online reference for future cross-selling opportunities. Allstate keeps the product selection and price of the online offerings consistent with its brick-and-mortar insurance line to guard against channel resistance from agents.

“There’s been continual communication to our agents on our strategy since November 1999,” Groot says. For the next five years, he notes, the bulk of Allstate’s sales will still come through agents, with as much as 20 percent through direct channels and the majority through call centers. Still, Groot contends that the clicks-and-bricks model holds promise: “Agents see the potential of [the new direct efforts] providing a new flow of customers and prospects for them.”

Boosting sales is just one of the carrots Kawasaki holds out to its dealer channel as part of BuyKawasaki.com, its B2C site that markets accessories like chrome bolt-ons for motorcycles and leather riding gear. Kawasaki opted to sell accessories, not vehicles, on its site partly so that BuyKawasaki.com would not compete with its dealers’ businesses and partly because the model could also increase sales at local stores, according to Roger Peterson, vice president of information systems for Kawasaki Motors Corp.

USA, based in Irvine, Calif. “By creating a presence on the Net, we’d drive traffic into their stores because a lot of people looking to buy accessories want to see and touch them,” he explains. “Also, we know accessories sell more vehicles and vehicles sell more accessories, and we wanted to sell more of both.”

Like PolaroidWork.com, BuyKawasaki.com has a dealer locator function, which upon checkout requires the buyer to specify a local dealer before the sale can be completed. Unlike Polaroid, Kawasaki

WHAT'S NOOSH IN SUPPLY CHAINS

Online intermediaries wring efficiencies from the Web

AS CHANNELS reinvent themselves for e-commerce, make way for upstarts that see opportunity in delivering services and tools designed to help traditional players squeeze the most efficiencies out of their new and improved online relationships.

Take the business of producing corporate collateral materials—stationery, sales kits and other printed items promoting brand identity—a niche targeted by online newcomer Noosh. Here, the extended value chain encompasses corporate clients, creative services departments, printers, direct mail houses, fulfillment organizations, electronic media shops and so forth, all trying to manage projects using an array of tools and often working off a set of incompatible files. Noosh’s opportunity, according to Dave Hannebrink, senior vice president of marketing and business development for the Palo Alto, Calif.-based startup, is to provide a “collaborative commerce” service for improving the process of managing and procuring collateral products.

Noosh clients, which range from corporate customers to large print houses, log on to the hosted service via a browser and pay for services by transaction. A proprietary, Web-based system enables instant messaging to all entities involved in a project and stores all messages and important project information in a central location. By serving as a communications node, Noosh speeds transactions and cuts down on misunderstandings.

This usefulness to companies up and down the corporate collateral supply chain has allowed Noosh to carve out a space in this vertical market. “It organizes the steps into an online model both [corporate clients and collateral producers] can deal with,” notes John Katsaros, vice president of Jupiter Research, a market research company in New York City.

Rather than creating an online print broker that would try to take business away from the existing channel, Noosh saw an opening in a process that is highly inefficient and that could profit from tools that improve production and tracking of collateral materials. “We’ve never thought in terms of disintermediating anyone,” says Hannebrink. “But this industry needed assistance in reintermediation and in making it more efficient. We provide a platform by which all people throughout many companies have a convenient way to share specific job information.”

From one printer’s perspective, the service Noosh has created helps foster better relationships with clients. “Noosh makes communications easier because it stores everything related to a project in one place,” says James Fucillo, a San Francisco-based sales representative with ColorGraphics, a \$150 million commercial printer with several West Coast locations, which turned to the service at the request of several large corporate customers. “It makes some customers more comfortable giving us jobs.”

—B. Stackpole

takes care of order fulfillment, shipping and returns—responsibilities it has always retained for accessories, since few dealers carry the full line of accessories. For their part, dealers are urged to provide support, if requested. In return, dealers get a cut amounting to 60 percent of the difference between the manufacturer’s suggested retail price and their cost, Peterson says. “It’s a no-lose proposition,” says Terry Adams, owner of Montgomery, Ala.-based Adams Motorsports Kawasaki, one of the top 35 Kawasaki dealers in the United States.

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The deal gets even sweeter with Kawasaki's B2B website, accessed via a URL similar to BuyKawasaki.com (Kawasaki withheld the URL for security reasons). Here, the company provides software tools so that dealers can analyze customer data to custom-tailor future marketing campaigns and refine their product mix. Dealers can also check warranty claims, access all technical service bulletins, get reports on their online rewards and order replacement parts at any time of day instead of being restricted to traditional business hours. Both Kawasaki websites include an electronic parts catalog that dealers and consumers can access. Although consumers can't actually purchase a replacement part over the Web, they can research their requirements and generate a list of part numbers and descriptions, making it easier for local dealers to process orders. "We wanted to put together a model that would be a positive business move for dealers," Peterson says.

When Avon Products launched its e-commerce site in 1997, it didn't initially reach out to its 500,000 U.S. Avon representatives, although that was always the beauty products company's long-term goal, according to company spokeswoman Laura Castellano. At that time, Avon headquarters in New York City discouraged independent reps from setting up their own websites hawking Avon products because the company wanted to create a consistent look and feel that would promote the brand across all Avon-related sites, she says.

Last September, as part of an effort to bring its distribution channel into e-commerce and turn some sales reps into "e-reps," Avon rolled out webpage templates that reps can use to offer Avon goods under their own URLs. The templates are visually consistent with the

corporate site, Avon.com, but reps can modify up to 10 percent with photos or special deals, for example. Already, 16,000 Avon reps have signed up for the program.

"We are using the Internet as an enabler for our channel," says Castellano, adding that reps can also use the corporate website for ordering, tracking inventory and billing. "We are a direct sales company. Ninety-eight percent of sales last year came from our direct sales channel, and we anticipate that 90 percent of sales will still come from that channel five years from now."

THE WHEEL TURNS

Some companies are using the Web to deploy new channels for their existing dealers. General Motors, for example, is looking to change its business focus by collaborating with its 7,700 dealers on a new online venture that will compete with independent car buying sites like Autobytel.com. According to Michael Gluk, director of business development at GM, the existing GMBuyPower.com site, which offers buying information, live inventory data and dealer referrals related to GM vehicles, appeals mostly to existing GM owners (40 percent of the new car market). With the new, unnamed site, GM and its dealers will be able to reach the remaining 60 percent of new-car buyers by offering the same type of data on GM and non-GM cars. "We have no intention of going direct [to car buyers]," says Gluk. "Dealers have the relationship with customers; we're just giving them the tools to strengthen their relationship."

Although the project is still in the early development stages, Gluk says GM and its dealers have already determined a number of ground rules. Most likely, the site will be part of a separate company, jointly owned and funded by GM and its dealers.



Jim Barron (left), VP of Internet development at Polaroid, says channel disintermediation delivers manufacturers no savings. Bruce Klein (right), president of Bernie's Photo Center, believes it's best to leave sales to dealers.

PHOTO LEFT BY JOSH TOUSTER; PHOTO RIGHT BY MARK BOLSTER

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E-Commerce

(Support from GM's channel partners is crucial; because people rarely buy cars online, the concept might never get off the ground without dealer cooperation.) The site will most likely provide a no-haggle, "guaranteed e-price" because customers who are serious about buying want to see real prices, Gluk says. And to show consumers the validity of information on the new website, GM and its dealers are hoping to co-brand the site with an objective partner—for example, Edmunds.com, which delivers comparative automotive pricing data. If the site flies, it will mark a shift in GM's approach, from selling only its own products to selling cars regardless of make. Gluk says executives hope to make a decision on the appropriate business model for the site by the end of 2000 and have it operational in the first quarter of 2001.

Clark Security Products, one of the largest U.S. distributors of locks and locksmith supplies, also saw opportunity in creating a new e-commerce venture with its channel. Instead of cutting out its 20,000 dealers, Clark spun off its online enterprise as a separate division (to avoid conflicts between the e-commerce and traditional businesses) and then handpicked 700 independent locksmiths with whom it will collaborate for online sales. The new company, SecureRite.com, markets the site and fulfills online orders, but sales transactions are electronically completed through the accounts of a nearby affiliated locksmith. Consumers choose a locksmith from a list generated by a dealer locator function. The selected locksmith also receives a cut of the transaction. SecureRite.com leverages the hands-on installation services and support of local locksmiths to grow its Internet business, while the locksmiths get increased sales, a compelling Web presence and the ability to offer a wider array of products via a "virtual" inventory—something most couldn't accomplish on their own.

"The promise of the Internet is to redefine the channel," says Glenn Younger, chief operating officer at SecureRite.com in San Diego. "We could develop a slick site and sell directly to users or industrial accounts, but we needed someone to help us with that last mile—mainly service and installation."

SecureRite.com sets up locksmith shops with a merchant account and transfer-of-funds account. Before credit card information is exchanged, the customer is prompted to select a retail location to complete a transaction. From there, SecureRite.com steps in to process the sale and wire money to the specified locksmith's merchant account. SecureRite.com offers a range of additional assistance to locksmiths, from content development to referrals and marketing to website design services. "Our goal is to make them look



Roger Peterson, VP of IS at Kawasaki Motors, uses both B2B and B2C websites to draw closer to dealers and consumers alike.

like a 21st century company," says Younger.

As a 14-person lock shop catering to the commercial market in greater Los Angeles, 4Point Access Control welcomes the change in its channel relationship with Clark. "We get more credibility to be part of the national SecureRite organization rather than [becoming known as] 'those Van Nuys guys with the cute website,'" says Med Mosher, one of 4Point's quartet of owners in Van Nuys, Calif. Mosher freely admits that 4Point would never have entered the Internet age so quickly if not for SecureRite.com and Clark. "The locksmith mentality tends to not be computer-oriented but more craftsman-oriented," he says. "We've always turned to Clark for our business orientation." Clark, in turn, solidifies its connection with a key distributor.

The benefits run both ways in this channel relationship; both Clark and its distributors profit from the presence of SecureRite.com. Their experience highlights a lesson of e-commerce. Rather than disintermediating their channels, companies choosing to take channel partners along are finding the ride through the new economy a lot smoother. **CIO**

Have any stories about disintermediation or reintermediation? Send them to letters@cio.com. Beth Stackpole is a freelance writer in Newbury, Mass. She can be reached at bstack@stackpolepartners.com.

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A man with dark hair, wearing a dark jacket and light-colored pants, is crouching low to the ground on a brick-paved sidewalk. He is looking directly at the camera with a slight smile. In the background, a person with white hair is riding a bicycle away from the camera. To the left, there is a yellow banner with Japanese text and a picture of a person. The street is lined with buildings and other pedestrians in the distance.

Jim Moliski,
co-founder
and CEO,
Opti-Mat,
Tokyo

Turning Japanese;
Jim Moliski wanted
to replicate his U.S.
startup's success.

The IPO DASH

BY LAUREN GIBBONS PAUL

Think the race to liquidity is tough on you? Here are three overseas Web startups facing low online penetration, inadequate infrastructures and cultural quirks.

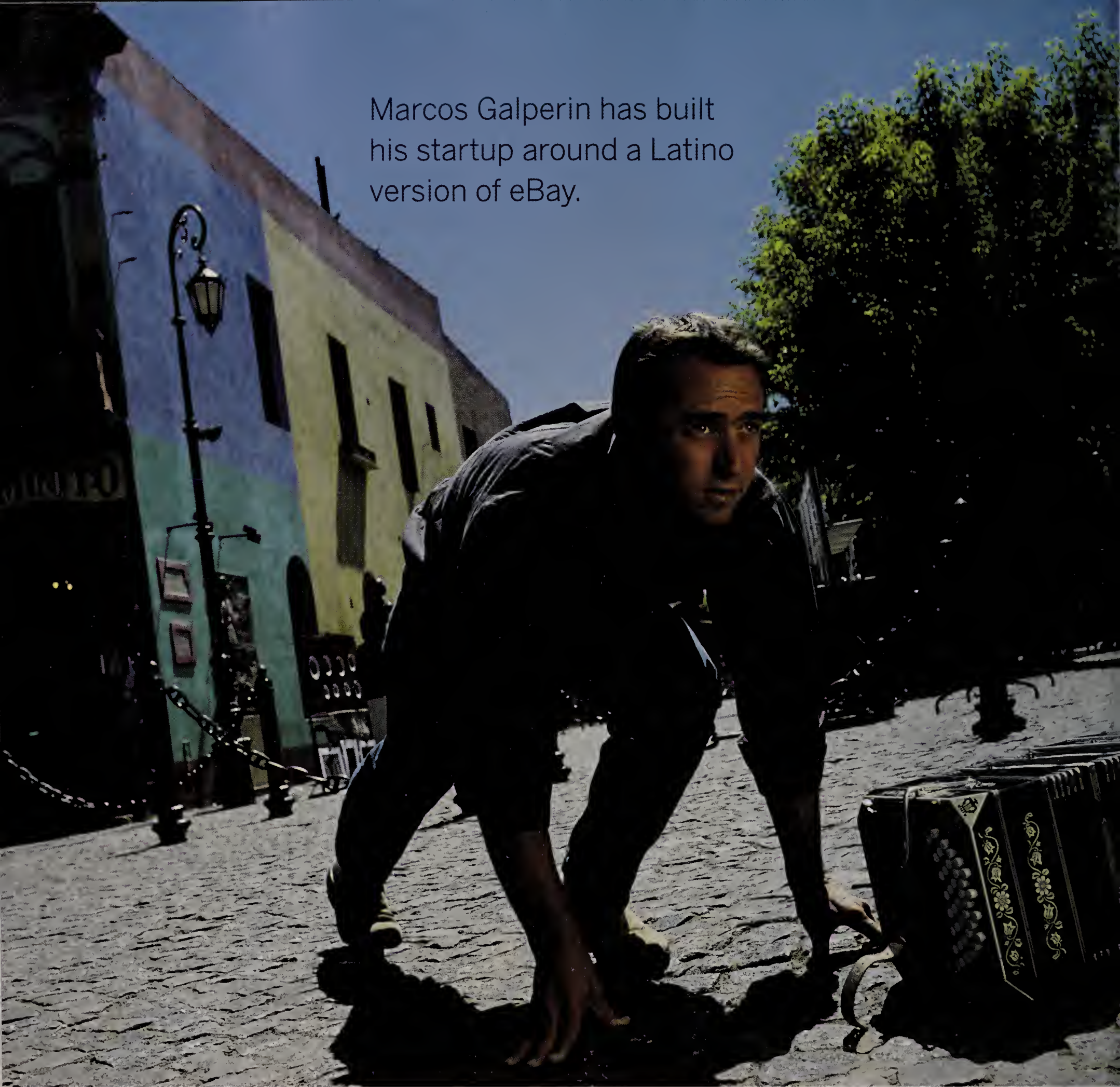
LOVE AND DOTCOM DREAMS WERE IN THE AIR

when Jim Moliski attended his former classmate Richard Chen's wedding in the summer of 1999. During a break in the reception, Chen, who had gotten his MBA with Moliski at the University of California-Berkeley, brought up the idea of starting an e-mail marketing concern in Japan. Moliski was all ears. He had just made a tidy profit by selling a U.S.-based dotcom he had founded to handle direct e-mail messages to consumers for other companies. Although Japan was still in a nasty recession, Moliski and Chen wanted to provide the same services there and were excited by studies showing the exploding number of Japanese consumers going online. But Moliski, a Florida native, hadn't counted on Japan's distinct economic

Reader ROI

- ▶ Discover the problems of doing business in different cultures
- ▶ Learn the survival strategies of overseas startups
- ▶ Understand the vagaries of going public abroad

Marcos Galperin has built his startup around a Latino version of eBay.



and cultural landscape. Right from the start, Moliski and Chen had trouble attracting the right people to work at their startup, called OptoMail. Japanese workers are famously loyal to their employers and wary of working at startups. Infrastructure was also an ongoing issue; it took more than six months to get high-speed Internet access in the OptoMail office, and telephone service was exor-

bitant. Office space is outrageously expensive (rent for OptoMail's 15-person Tokyo office is more than \$10,250 per month). And e-commerce has not yet taken off (Japanese consumers are leery of online fraud, and most don't use credit cards anyway, preferring cash and wire transfers to pay for purchases). To top it all off, the large Japanese companies Moliski and Chen are targeting

Marcos Galperin, *founder, MercadoLibre, Argentina*

for e-mail marketing seem to prefer doing business with companies they already know.

"You have things good in the United States, believe me," says Moliski, 33, who spends half his time in Tokyo and half in Berkeley, Calif., meeting with the U.S. parent

companies of potential Japanese clients.

Like Moliski, many online entrepreneurs are learning that the overseas climate can be harsh—or at least one heck of a learning experience. It's not so much that money is a problem—although funding is always a great challenge. A bigger problem is that other countries have much lower rates of Internet penetration than the United States (see “Level of Internet Penetration,” this page). Half of the U.S. population is estimated to have Internet access, compared to only 12 percent in Japan, just over 30 percent in western Europe and not even 5 percent in Latin America. Infrastructure problems are largely to blame. Most foreign countries do not have high-speed Internet access and are plagued by antiquated phone lines. Even pricing systems can be a problem. In Japan, for example, telephone customers are charged for every call; there is no such thing as free local calls, so people tend to curb their Internet usage.

Local traditions also get in the way. In some Latin American and Asian countries, for example, customs snafus make it all but impossible to get a package overnight. Delivery costs are much higher too. And those two-hour lunches, common in Europe and Latin America, can sure cramp a startup's speed to market.

As in the United States, it's getting tougher for Web startups to find funding, especially if they sell to consumers. But many countries now have newer, more tech-friendly stock

markets, akin to the Nasdaq in the United States, that make going public a possibility. For instance, while Japanese startups have no hope of meeting the stringent requirements for going public on the traditional Tokyo Stock Exchange, they have a better

chance of competing on Japan's two fairly new technology-heavy stock markets, Nasdaq Japan and Mothers Stock Market. In Latin America, local funding is harder to come by, unless you have an “in” with regionally formed incubators or family-run companies that control much of the financial capital in those countries. There, who you know is more important than what you know. “Fresh ideas and a solid management team will find a venture capital audience with either crowd, but contacts are vital,” says Grant Smith, a senior analyst with the Yankee Group in Boston.

For the most part, however, going public—the Holy Grail for all startups—is no more

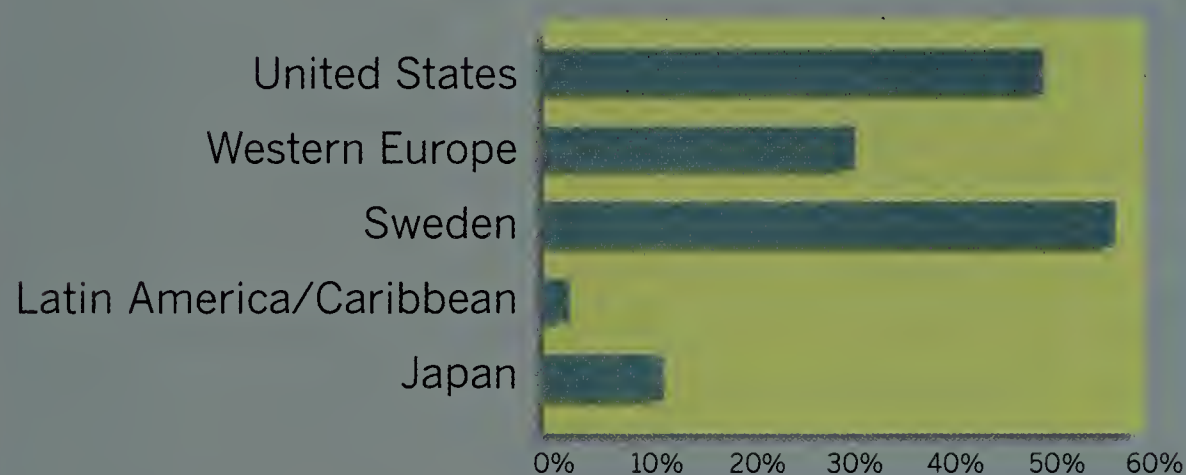
cycle. Whether headed for an IPO, mere profitability or oblivion, these companies' survival skills have enabled them (by press time at least) to hang on in the face of uncertainty. We follow their twists and turns as they struggle to avoid the global dotcom shakeout.

THE \$7 MILLION CHAUFFEUR

In the spring of 1999, Marcos Galperin was fresh out of the Stanford Graduate School of Business with nothing but an MBA and an idea when he caught a lucky break. Moved by the spectacular success of eBay, Galperin dreamed of creating a person-to-person auc-

Level of Internet Penetration

The United States has higher levels of Internet usage than many other countries.



SOURCE: IDC, NIELSEN/NET RATINGS

The rate of Internet adoption in the Latin American countries is still between only 3 percent to 5 percent of the population, depending on the country.

markets, akin to the Nasdaq in the United States, that make going public a possibility. For instance, while Japanese startups have no hope of meeting the stringent requirements for going public on the traditional Tokyo Stock Exchange, they have a better

remote for overseas ventures than for their U.S. counterparts, if they can survive the hard knocks of early startup life, such as funding crises, personnel pitfalls and jittery markets. The three overseas startups profiled here are all at different stages of the new-venture life

tion site for Latin America. “Latins are very used to bargaining, and they don't throw away used stuff. It was a fantastic model for these countries,” says Galperin. He reasoned he had better insight into the diverse Latin American cultures than any U.S. company and would be better able to handle inter-country customs and bureaucracy. The then 28-year-old Argentinian had stayed in touch with Stanford Graduate School of Business Dean A. Michael Spence (now retired), and he brought the idea to him. Spence liked it and offered Galperin the chance to take his



Ignacio Vidaguren opened MercadoLibre's office in Miami, the gateway to Latin America.

friend John Muse—who just happened to be founder of the Dallas VC firm Hicks, Muse, Tate & Furst—to the airport. Galperin walked away from that trip with seed money for his venture, called MercadoLibre (“free market” in Spanish). Shortly thereafter, other investors ponied up a total of \$7 million for the first official round of funding.

Within a few weeks, Galperin, his cousin Marcelo Galperin and Hernan Kazah (all Stanford MBAs from Argentina) had recruited several of their Stanford classmates to join MercadoLibre, which started business in Buenos Aires in July 1999. (MercadoLibre was the fourth largest recruiter of Stanford grads that year, behind Goldman Sachs, Boston Consulting Group and McKinsey.) But a top education wasn't the only criterion. These

new hires were all natives of the countries in which MercadoLibre operates—initially Argentina, Brazil and Mexico, and then Venezuela, Colombia, Spain, Uruguay and Chile.

Galperin organized MercadoLibre as a U.S. corporation because it inspired confidence in the company's investors, which are for the most part located in the United States. Having a U.S. headquarters also puts the company in a good position to go public on a U.S. stock exchange, should the chance arise. “The ideal would be to go public in the United States because of the liquidity and relevance of the market to our business,” says Ignacio Vidaguren, vice president of business development. “But there is always the chance to go public in local [Latin American] exchanges too. The Brazilian and

Ignacio Vidaguren, VP of business development, MercadoLibre, Miami

Mexican exchanges are very important.”

Vidaguren, an earnest 29-year-old Argentinian with wavy brown hair and arresting green eyes, opened the company's U.S. office in Miami, shortly after joining MercadoLibre in November 1999. Miami seemed the right place for the headquarters, since it is the gateway to Latin America and has a large Hispanic population of its own. Vidaguren had friends at a Latin American investment site that headquartered in South Beach, so he made a few calls to real estate agents there.

By December, MercadoLibre had settled in on the ninth floor of a squat 1970s office building in the chichi Lincoln Road section of South Beach. “By February or March, every single dotcom was trying to get space here. The line was going around the corner,” recalls Vidaguren. The manager of the building even asked Vidaguren and his colleagues to vouch for the newer startups that were clamoring for space, including ZDNet and B2bwin.com. But after Internet stocks took a beating on the Nasdaq in April and May, some of the dotcoms that had reserved space never even moved in. Now only a handful of Web startups remain in the building, a constant reminder that existence can be fleeting. (When stressed, MercadoLibre's Miami staff—almost all natives of Latin America—blow off steam at Finnegan's, a nearby Irish bar with a palm-ringed patio.)

Much like eBay, MercadoLibre charges a commission of 5 percent to the seller on each successful transaction (for sales over \$200, the commission is 2.5 percent). The site also charges special posting fees of between 50 cents and \$3 (a plain vanilla posting is free). Another source of revenue: licensing MercadoLibre's homegrown auction platform for companies that sell to the Latino market. Vidaguren knows of no other auction platform that is written in native Spanish and Portuguese. Translating an English site can be a huge task. Although officials decline to disclose financial details, MercadoLibre has licensed its auction technology to several

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no one vendor can seem to get it
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In Latin America, local funding is harder to come by, unless you have an "in" with regionally formed incubators or family-run companies that control much of the financial capital in these countries.

sites targeting South and Latin American consumers, including UOL (another South American portal), StarMedia (a South American Internet portal) and Viajo.com (a South American travel site).

MercadoLibre's customized Oracle 8i platform has certain features that make it inherently more desirable to Latin American users, according to Vidaguren. For example, most auction sites (including eBay) won't allow users to enter a bid lower than the minimum bid. Through a feature called Contra-Oferta (counteroffer), sellers can choose to accept bids lower than the minimum starting bid. So if the auction is about to close without any bid, it might make sense for the seller to entertain a lower offer. This appeals to Latin Americans' love of haggling, says Vidaguren.

MercadoLibre seems secure for the moment. To date, it has hosted 200,000 transactions with a total value of \$55 million. The average price of an item listed on the site is an impressive \$300 compared to eBay's \$50. Electronics and signed soccer jerseys are top sellers. In the depressing days after the Nasdaq correction, the company managed to raise an additional \$47 million from several U.S. companies including Chase Capital Partners, Flatiron Partners, GE Capital Group, Goldman Sachs and Ventech International. Galperin says the company should be able to conserve its funding until 2003, in part because it does not have to pay for a delivery and logistics infrastructure (since consumers send the goods to each other). He expects MercadoLibre to break even by December 2002.

The cash infusion gave MercadoLibre the necessary credibility to hire more people, some of whom were nervous about going

to a dotcom. Today, the company employs 12 in Miami and 180 worldwide. Speaking Spanish is a job requirement, but company e-mails are in English so that they don't offend Brazilian workers, who are Portuguese speakers and sometimes resent the predominance of Spanish.

MercadoLibre's money goes further than many startups, because U.S. dollars buy a

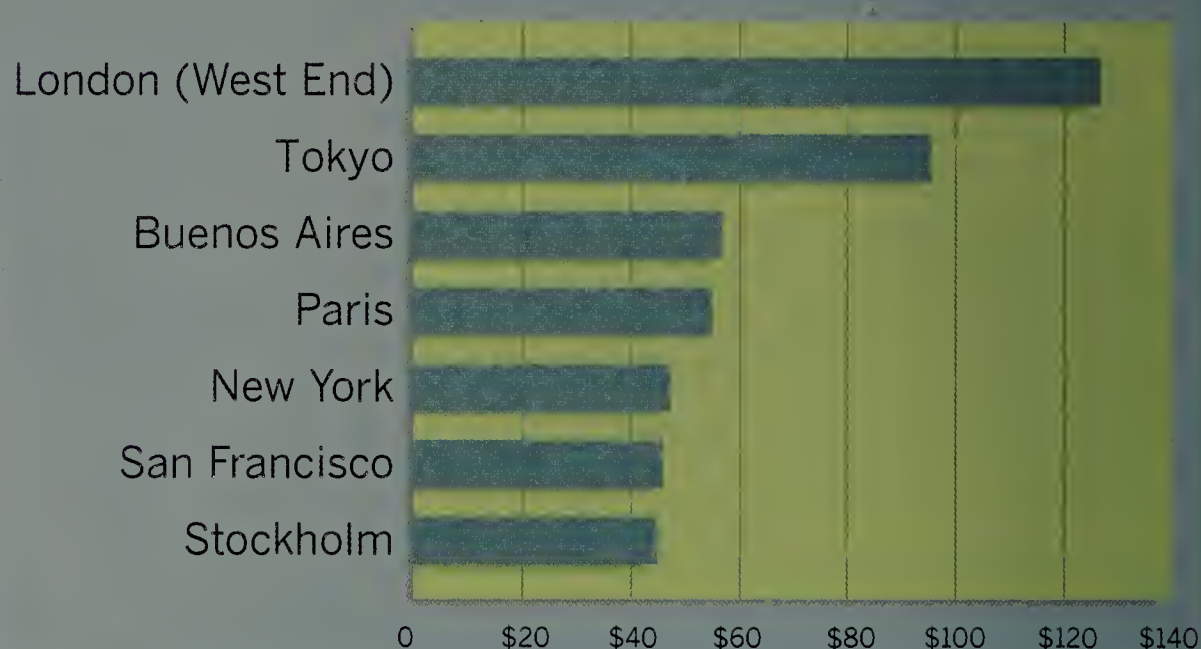
are much lower in Latin America than they are in the United States, and the Argentine technical team is able to maintain the site much more cost-effectively than a U.S.-based team could.

Although the Galperins and Vidaguren swear they're trying to build a sustainable company, not just to get rich quick, going public—whether in the United States or abroad—is never far from their minds. Another possible endgame: acquisition by the big kahuna, eBay. "We could be acquired by eBay—it's up to them, not up to us. We would like to be the obvious choice," says Vidaguren.

The journey so far has not been without unwelcome surprises. For one thing, the rate of Internet adoption in the Latin American

Cost of Office Space

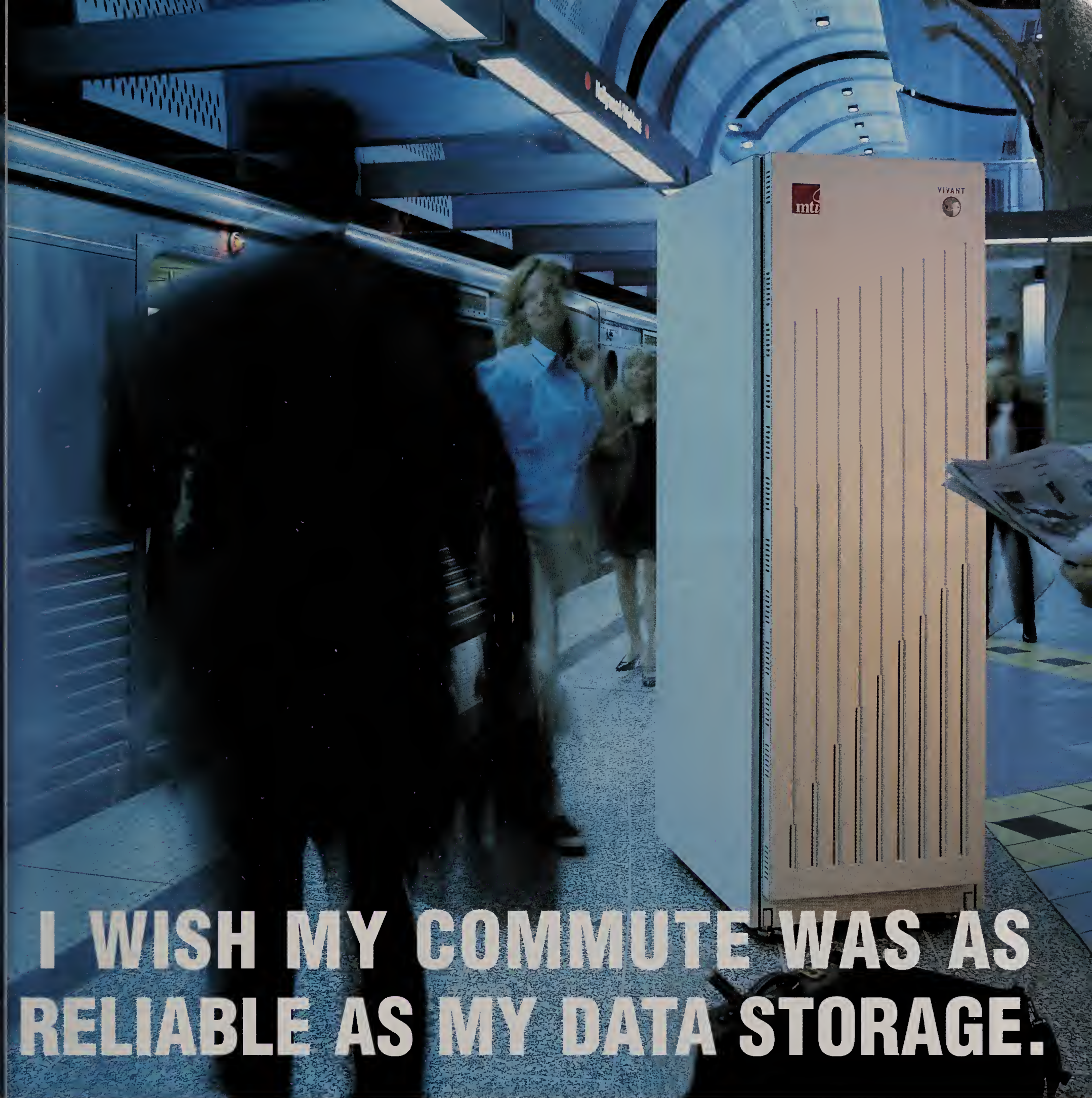
Price per square foot



SOURCE: REALITY TIMES

lot of labor in Latin America (the company's technical staff of about 25 is in Argentina). "In Latin America there are very good resources in terms of people. The levels of unemployment are much higher than in the United States, and the degree of development of the Internet is lower. More people are interested in working with Internet startups," says Vidaguren. Salaries

countries is still between only 3 percent and 5 percent of the population, depending on the country. Fear of online fraud has been a significant factor since consumers are not typically shielded from liability for fraud, unlike in the United States where most credit card users are liable for only up to \$50 in fraudulent charges. It's not surprising, then, that Latin Americans are not big credit card



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users, although Galperin says this is slowly changing. Concerned by the slow acceptance of e-commerce in its target markets, MercadoLibre began a pilot study early last year, targeting the 30 million U.S.-based Hispanics. "The studies at the time were saying that there were 6 million to 9 million Hispanics online in this country," says Vidaguren. That makes for a very attractive segment—a higher number of online consumers than all the Latin American countries combined. Surprisingly, the U.S. pilot did not reveal much interest by U.S. Hispanics. "Many were indifferent to whether the site was in English or Spanish. We found that the

people who do prefer Spanish to English in the United States are generally not as comfortable yet doing transactions on the Web. So we'll have to wait a little bit for that group to blossom," says Vidaguren.

Despite this setback, Yankee Group's Smith thinks MercadoLibre has legitimate value for Latin American consumers. "Mer-

cadoLibre's model takes advantage of what the Internet does best. The fact that they aren't trying to sell bricks or pet food—along with their relatively early, well-funded start—means that they've got a chance," he says. However, he cautions that MercadoLibre will have to start showing some solid success (in terms of increasing revenues and eventual

Lars-Henrik Friis-Molin, the founder of Joblines, was smart enough to realize his venture was in danger of imploding from too much growth.

profitability) this year because a significant percentage of the highest income Latin American residents are already online, Smith says.

BRINGING IN THE GROWNUPS

One of the luxuries of doing business as a B2B rather than a B2C Web startup—whether in the United States or abroad—is that your customers are likely to be much readier to accept your offering. For the founders of Stockholm-based Jobline International, there has been precious little in the way of waiting around. Jobline was founded in Stockholm, Sweden, in 1997 by Lars-Henrik Friis-Molin. Friis-Molin had been conducting online research on university students' attitudes for another company, Universum, when he realized that the personal data the students had entered would make an excellent job-hunter database. So, with the students' permission, Friis-Molin created a database (now up to 644,000 CVs) for recruiters and job boards for students. Clients pay Jobline about 10 percent of a successfully placed candidate's salary—a major savings over the traditional 25 percent employers pay offline headhunters.

Toon Bouten, chief executive officer, and **Lars-Henrik Friis-Molin**, founder, Jobline International, Stockholm, Sweden

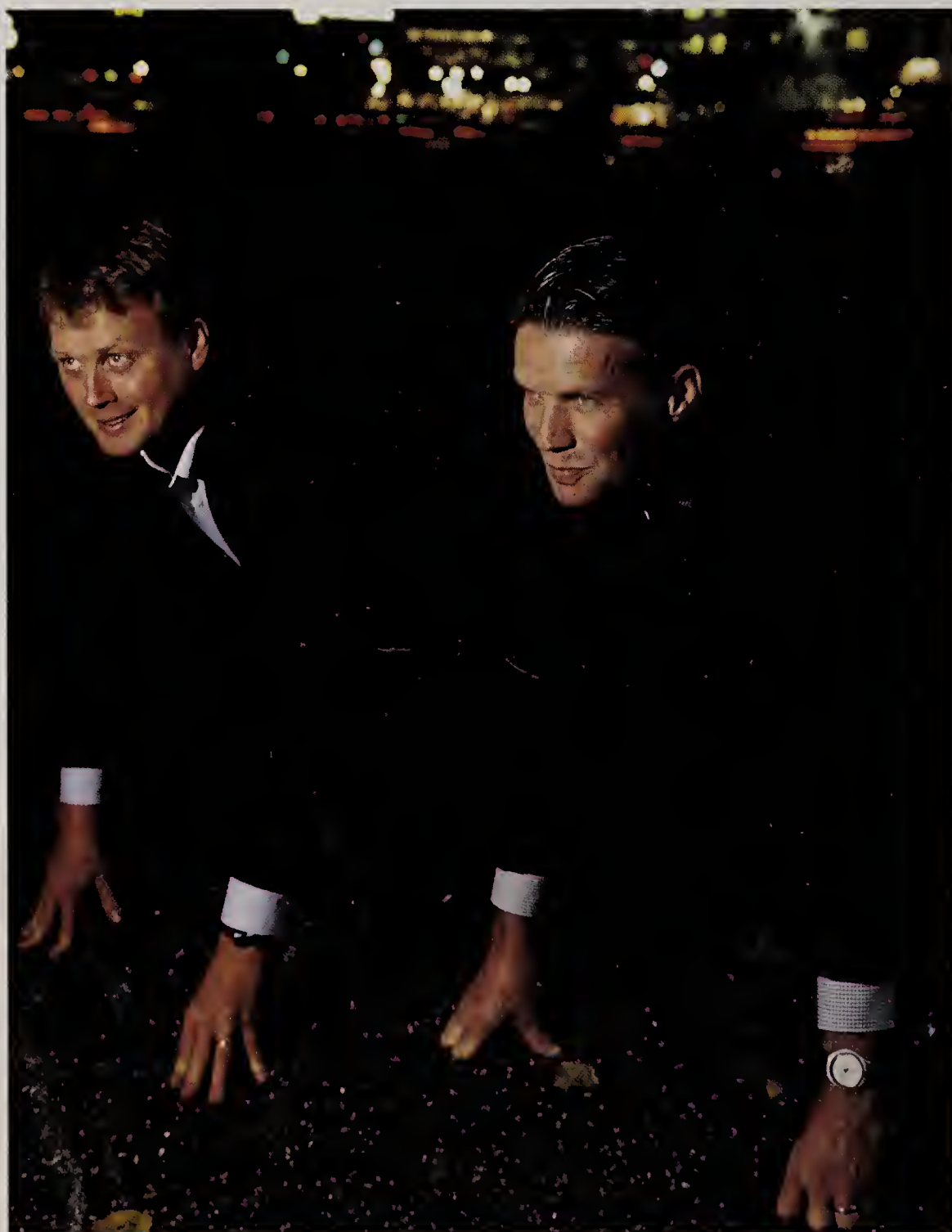
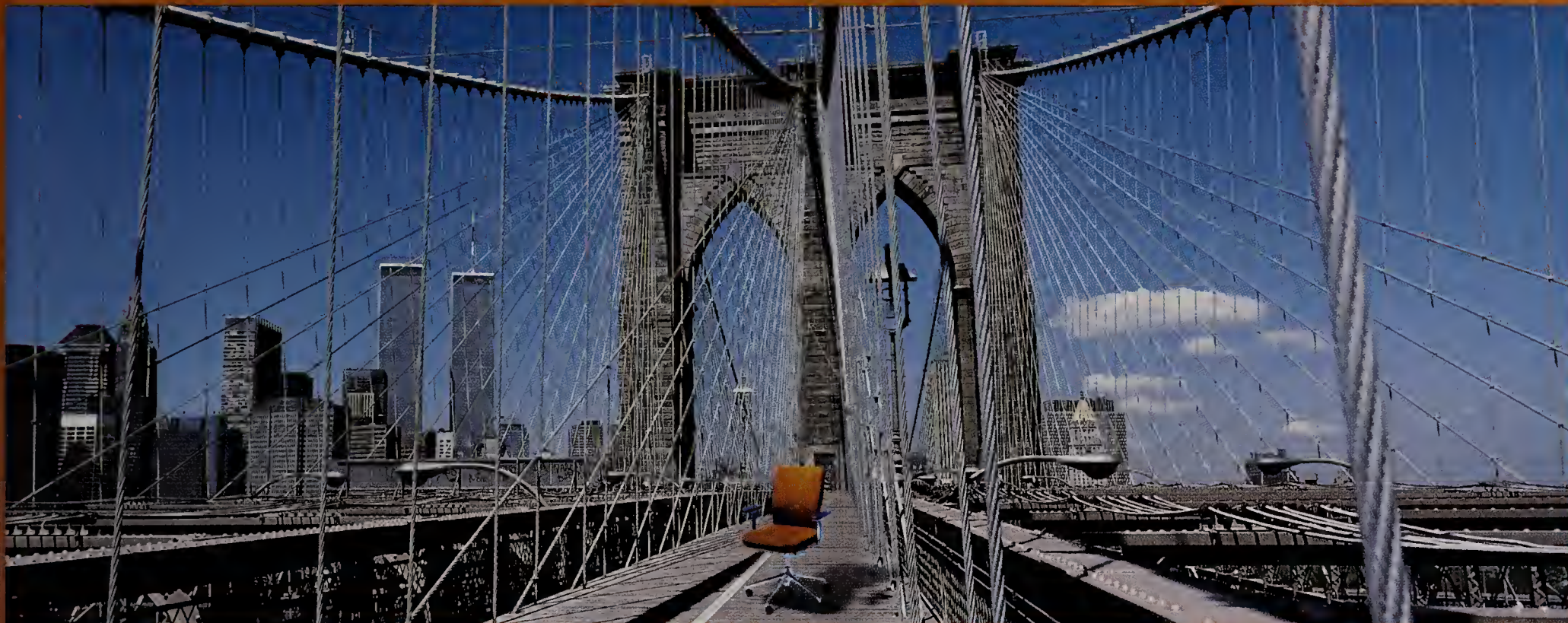


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In 1998, Friis-Molin forged a profitable partnership with Bonnier Group, the largest Scandinavian publisher, which positioned Jobline to expand from Sweden into Norway, Denmark and Finland. U.S. venture capital firms invested in the growing company in late 1998. At the time, European VC firms were just getting up and running, and it was easiest to start with U.S. investors.

By 1999, Friis-Molin's leadership had carried the company successfully through its first growth spurt. But he was smart enough to realize his venture—like many others before it—was in danger of imploding from too much growth too fast. So he called in a team of seasoned managers, including Toon Bouten as CEO and Tom Nyman as COO, to help take the company to the next level. Bouten, 42, spent six years as vice president of the European consumer division for Compaq; prior to that, he had been with Philips Electronics for 10 years. Bouten feels that the young entrepreneurs who start these ventures often don't know how to pace their company's growth, and they expand too fast. "At a certain point, things can go out of

"outrageously expensive." The trade journal *Realty Times* puts London at the top of the global rent heap at \$126.85 per square foot, with Tokyo a distant second at \$95.63 (see "Cost of Office Space," Page 164, for a sampling of global commercial rents).

Jobline contends with the cultural challenges of operating in so many different countries by trying to instill a sense of corporate—rather than country—culture. For instance, the company has an international sales conference once a year, and managers in all countries "meet" in weekly phone conferences. Still, misunderstandings sometimes crop up. "Swedish people are more introverted," says Bouten. "In group discussions it can sometimes appear they are not interested in a subject. But that's not true. You have to approach them actively to get their opinion, whereas Italians, for example, are always answering."

Last September, Jobline went public, raising 83.3 million euros (roughly US\$73.1 million) in its IPO on the OM Stockholm Exchange. Jobline has 477 employees and so far this year has hit revenues of 15.6 million euros (about US\$13.3 million). But the com-

brick-and-mortar companies as opposed to pure plays. Now that Jobline has successfully gone public, it will have only a short time—eight to 12 months—to prove itself by achieving profitability, Torris says.

A REMOTE DREAM

Going public will likely remain a remote dream for Moliski and his colleagues at OptoMail. Japan's cultural differences and its more conservative business community may prove too difficult an obstacle to surmount for this particular startup. As Moliski has learned to his chagrin, even a little thing like a creased business card can damage business-customer relations. When he off-handedly handed a potential client the last business card in his wallet, the businessman chastised him severely for the card's rumpled condition. Moliski has since mastered the Japanese ritual of presenting business cards. (Executives proffer their cards with two hands and slight bow. Next, each makes a polite remark about the other's card. Only then can business begin.)

But it may be too late. Though OptoMail has a handful of clients, profitability is remote. The funding won't last forever, and prospects for another round are faint. "We'd always hoped to be profitable. It hasn't happened yet. Some type of exit event would be nice," says Moliski wistfully, no doubt thinking of the successful sale of his first venture. It would be nice to get his life back, though he admits he may still be infected by the startup bug.

"This job is so all-encompassing that I don't spend a lot of time thinking of what I'd like to do next," Moliski says. "I don't know if I'd have the energy to do another startup. But there are plenty of entrepreneurs who said the same thing who are now on their third and fourth companies." **CIO**

For better or worse, Europe never experienced the all-out Internet craze that swept the United States.

control," says Bouten, mindful of the highly publicized fate of his Swedish countrymen who founded the B2C fashion venture Boo.com.

During late 1999 and 2000, Jobline has added eight countries of operation (Austria, France, Germany, Italy, the Netherlands, Spain, Switzerland and the United Kingdom) to the original roster of four, for a total of 12. The trick to ramping up so quickly, says Bouten, was to find the right property at the right price and then follow detailed processes for increasing operations. Of course, it's not always possible to find good space at a decent price. Bouten had to settle for a tiny office on the outskirts of London; he calls rents there of \$500 per square meter

pany is not yet profitable, although Bouten expects to achieve that crucial milestone in the near future.

For better or worse, Europe never experienced the all-out Internet craze that swept the United States. So while it was harder for European Web startups to obtain money in the beginning, fewer of them are now in the position of being overvalued, according to Therese Torris, Amsterdam-based research director of European Internet commerce for Forrester Research. "There were a handful of overfunded enterprises but very, very few—unlike the United States," says Torris. True startups like Jobline also faced a tougher road because European venture capital firms tend to invest in Web spinoffs of

E-mail Senior Editor Alison Bass at abass@cio.com with your own startup tales. Lauren Gibbons Paul is a freelance writer in Waban, Mass. You can reach her at lauren paul@mediaone.net.



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INNOVATION and PRODUCTS in the VANGUARD

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Edited by Christopher Lindquist. Send your thoughts and ideas for future columns to et@cio.com.



A Growing Body of Knowledge

What's to know about knowledge management BY EDWARD PREWITT

KNOWLEDGE MANAGEMENT is the Holy Grail of the modern company, much rumored but rarely found. Many software solutions—from document management and data mining to search engines and portals—have claimed to be the key, only to fail. “Knowledge management is a mix of all those disciplines with a good dose of know-how on top,” opines Elise Olding, vice president for

knowledge, e-learning and collaboration at the Hurwitz Group, a Framingham, Mass.-based consultancy. In other words, knowledge management can't be found in a shrink-wrapped box.

And yet some recently released software products seem to make promising progress toward nearly transparent knowledge management. While these apps take very different slices at the

knowledge management...collaboration...transaction processing

new products

Smarter Searches

There's no end to the search engines available to help you find things on the Web, but the results are often less than spectacular, particularly when you're looking for information directly relevant to making your business more competitive. Now **Moreover.com** has released its **Business Intelligence Solutions**, a tool that gives businesses access to more than 2,000 online sources plus the capability to access data stored inside corporate intranets. Moreover.com categorizes the information within any topic area and then provides the data as live links that can live on a corporate portal or intranet. The Moreover.com tools support more than a dozen output formats, including HTML, JavaScript, multiple flavors of XML and WAP, making it possible to provide the data over a variety of desktop and portable devices. Pricing starts at \$30,000 per deployment. For more information, visit www.moreover.com or call 415 371-8060.

Protective Services

Axent Technologies has released a cost-effective security appliance suitable for protecting communications with branch offices at larger companies. Once installed, the **VelociRaptor** acts as a firewall and Virtual Private Network server. Software installation wizards speed

problem, they share an elegant approach to structuring information. Rather than asking users to create time-consuming data taxonomies (the process of coding, tagging and distilling keywords from the reams of information inside an enterprise), Knowmadic's KM.Studio, Autonomy's peer-to-peer capability and KVS Software's Enterprise Vault all attempt to organize information effortlessly and invisibly. They operate in the background, silently expanding the corporate knowledge uni-

own way. It's like having your own personal librarian." Santa Clara, Calif.-based Knowmadic's KM.Studio, which started shipping last October, combines a sophisticated Web browsing capability with automated work processes. The product manipulates both the Web and enterprise applications like a database, says Knowmadic Vice President of Business Development Brian O'Neill, thereby letting users find, extract and manipulate information in a variety of formats (such as HTML, XML, PDF or

These products claim that they can help your users become a collection of knowledge workers without changing the way they do anything.

verse—even incorporating information from beyond the company walls.

In short, these products claim that they can help your users become a collection of knowledge workers without changing the way they do anything—and that simplicity is the key. "Knowledge management needs to be painless," Olding says. "Until we get to the point where technology mirrors the way people work, knowledge management isn't going to happen." KM.Studio, Autonomy's P2P technology and Enterprise Vault allow workers to structure and restructure information—from internal databases to webpages to corporate memos—on an as-needed basis instead of forcing all employees to become archivists.

Canvassing the Web

"You cannot get all information from one source—but Knowmadic can," says Dante DeWitt, CIO of Equinix, a Mountain View, Calif.-based company that manages secure operations centers for e-businesses. DeWitt says that not only is the product ideal for organizing thousands of data sources, it works the way users need it to. "Each individual can use the tool and configure it his

Open Database Connectivity-compliant databases) from nearly any source.

A simple drag-and-drop interface lets users connect navigation and extraction objects to business rules they create. The users can then record their actions and set KM.Studio to repeat the process. This macrolike capability is very useful, says DeWitt. "You can decide, for instance, that you want to see all analyst reports related to a certain sector every day and do it simply and graphically." DeWitt used KM.Studio while CIO at Chase H&Q, the investment banking arm of Chase Manhattan Bank, and he is now considering buying the app for use at Equinix.

Installing and running KM.Studio need not be a chore. Although nontechnical users generally turn to the IS department for set up, O'Neill says, sophisticated users can configure KM.Studio themselves in about a day.

Among Peers

Cambridge, England, and San Francisco-based Autonomy has gained reputé since its launch in 1996 as the only company with software based on the work of

Thomas Bayes, an 18th-century English cleric who developed probability estimation techniques while searching for mathematical proof of the existence of God. Autonomy's technology uses probability theory and pattern-matching algorithms to identify similarities in unstructured information—text, spreadsheets, PowerPoint slides and other material that people can understand but computers usually can't process. In November, Autonomy announced a soon-to-be-released peer-to-peer version of its technology that

is extremely fast—hundreds of gigabytes of content within tenths of milliseconds—the platform can tackle each query afresh, searching for similarities among huge amounts of information without the need for tagging data. Lagerborg has found Portal-in-a-Box faster and more reliable than the traditional search engines it supplanted. Autonomy's added features, such as automatic e-mail notification and search agents, are another selling point. About 3,000 users at Ericsson have created agents to automate searching the business

Unlike corporate databases and other group information stores, e-mail is rarely managed.

extends the capabilities of its basic platform, linking employees' PCs so that Autonomy software can automatically search them for parallels. For large, far-flung companies, this new function can harness existing knowledge—letting employees put it to use instead of having it lie hidden and unused—the fundamental definition of knowledge management.

"When I set up an agent on Web servers, it immediately came up with another person in the company who's interested in Web servers," says Krister Lagerborg, manager of the Business Intelligence Center unit of Ericsson in Stockholm, Sweden. "Autonomy links to other people with similar agents and generates a list." That list then becomes a valuable source of information that might otherwise have gone untapped. Lagerborg's group launched Autonomy's Portal-in-a-Box product in February 2000 for use with searches of the business intelligence portion of Ericsson's intranet. The news and analysis content of the business intelligence portal make it the second-most visited site on the company's intranet, with about 10,000 regular users (out of 105,000 Ericsson employees globally).

Because Autonomy's search capability

intelligence portal, Lagerborg says. Autonomy generates the peer-to-peer linkages automatically.

This background operation—in personalization, profiling and notification—is a principle of Autonomy, says David Appelbaum, the company's general manager for North America. "Any kind of system that forces people to do things differently than they already do is going to be doomed," he says. This ease of use extends to installation; Autonomy's platform is highly generic and modular. IS staff can configure the platform any number of ways. Ericsson devotes only one IS worker to running Portal-in-a-Box.

It's in the Mail

Knowmadic and Autonomy reach out to the Web and other external sources for their information. In contrast, KVault Software (KVS) focuses on an often-overlooked internal repository of knowledge: e-mail. "If you use e-mail, you're a knowledge worker," says Nigel Dutt, CTO and founder of KVS, headquartered in Winnersh, England. Yet unlike corporate databases and other group information stores, e-mail is rarely managed. Instead, senders and recipients, reluc-

new products

configuration, allowing for a from-box-to-running time of less than 30 minutes in most cases. The device is based on the Cobalt Networks' RaQ appliance and takes up a single space in a standard rack. Pricing begins at \$4,995 for a block of 25 protected nodes. For more information, visit www.axent.com or call 408 517-8000.

Supply Side Manager

E-business software provider

Eventra has unveiled the latest release of its **VendorSite** supplier relationship management product. Version 3.0 of VendorSite includes new configuration tools to speed design and implementation of VendorSite systems, support for multiplant bar code labels with the capability to support different standards for each plant, automated invoicing, integration of XML and EDI formats, and more. Pricing begins at \$150,000 plus per-user, configuration and maintenance fees. For more information, visit www.eventra.com or call 203 882-9988.

Forging Software

Companies interested in open-source software development have a new tool for their trade.

SourceForge Onsite from **VA Linux Systems** provides secure centralized code, project and knowledge management tools that can

Continued on Page 176



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tant to share e-mail, retain the files on their hard drives.

Researchers retained by KVS estimate that corporate users across the globe send 4 billion e-mail messages a day. As most anyone who uses e-mail can attest, much of that influx piles up, waiting to be read and replied to or deleted, all the while scrolling farther down the inbox. Dutt founded KVS in December 1999 after realizing that e-mail had become a de facto long-term storage repository. Yet limits on server space typically force IS departments to prod users to clean out their mailboxes every few months. When that happens, Dutt says, "people either read all those e-mails and do something with them or—what usually happens—they throw them out. That information is lost. And when people leave the company, knowledge is lost, because there is no record."

KVS's solution is Enterprise Vault, a generic, scalable application that typically resides on a Windows NT server. Enterprise Vault automatically archives all e-mails in a company's Microsoft Exchange or Outlook system, allowing IS staff to slim down server space while giving users instant access to all e-mails. "Users put an icon on their desktop and retrieve archived e-mail themselves. It's that simple," says Daniel Rodriguez, former vice president of corporate e-mail at Donaldson, Lufkin and Jenrette in New York City. Employees needing to retrieve old e-mails no longer have to go through his office, Rodriguez says. "It's a big time savings for users and for [IS]. They didn't have to call the help desk, and for IS, we don't have to go to tape." Before installing Enterprise Vault, Rodriguez's office would often have to download tapes to find old e-mails—a process taking seven hours per tape.

Of course, better archiving alone doesn't advance knowledge management; the problem of unmanaged information remains. Where Enterprise Vault improves on the standard e-mail package, however, is in its search capabilities. Enterprise Vault

incorporates AltaVista's search technology, which users can configure to search the headers and bodies of all stored e-mails, either for individual users or systemwide. This enhanced access to e-mail is a potential boon to companies that are poor at sharing knowledge. "There's an incredible amount within e-mail that's critical to the way companies now do business," says the Hurwitz Group's Olding.

For all the attention paid to knowledge management, Olding dislikes the term, finding it ill defined. "If we think about the times we've learned and had 'aha' moments, that's not managed," she says. "Simply put, I look at knowledge embedded in the process." Technologies like those profiled here "are going to be the ones that survive," she says, "because they work the way people do." ■

PREDICTIONS

collaborative manufacturing

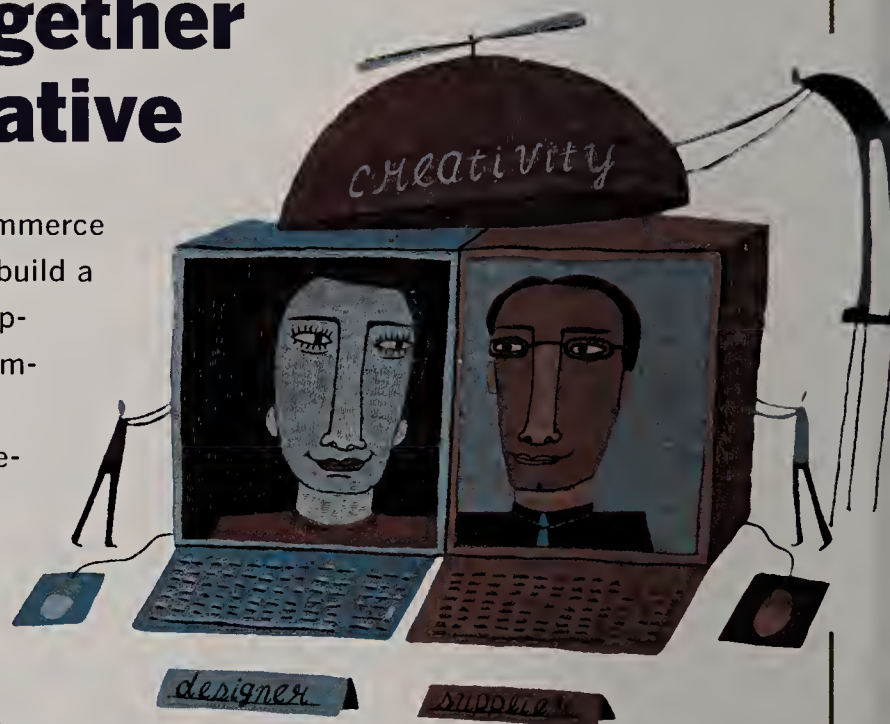
Getting Together to Get Creative

COLLABORATIVE Product Commerce (CPC)—using the Internet to build a more efficient product development process by providing companies and departments with fast, convenient access to relevant information—is on the cusp of a dramatic popularity increase.

A recent report by Boston-based Aberdeen Group—"Beating the Competition with CPC"—predicts that the market for hardware, software and services related to the nascent technology space will grow from \$3.2 billion in 2000 to more than \$49 billion in 2005. According to the report, ever-increasing pressure on manufacturers to bring fresh products to market will force these companies to find new ways of gaining an edge on their competitors. In the past, companies have turned to enterprise resource planning, customer relationship management and supply chain management as a means of staying ahead. CPC will become the next logical step, the report indicates, particularly as manufacturers move from a "make-to-stock" to a "build-to-demand" model.

According to Aberdeen, manufacturing itself is also in flux. Rather than creating and assembling all parts within a company, manufacturers now rely more heavily on building products based on modular components from a variety of suppliers. Using CPC, suppliers, manufacturers and customers can access information about a given product from a pool of shared information. The report notes that this pool can contain a variety of data, ranging from design information to customer feedback. By providing this information to everyone involved in the supply chain, development times and associated costs can drop significantly.

—Christopher Lindquist





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transaction processing

OLTP Takes a Bow

Transaction processing makes the migration from big iron to distributed computing **BY FRED HAPGOOD**

USUALLY WE ARE forward-looking, devoted to new technologies and how they can be made to measure even halfway to their sales pitch. More rarely we congratulate the community on a good job of glitch busting. One such moment came in September 1992, when we brought up the topic of online transaction processing (OLTP).

In the most general terms, OLTP is a kind of error trapping. The term refers to monitoring a suite of related database changes so that if anything goes wrong with any one of those changes, all the associated entries made up to that point could be erased. (The industry mantra, coined in the context of the first OLTP application—automated teller machines—is “no debit without a credit and no credit without a debit.”) While the technology has nothing necessarily to do with commerce, it is hard

to imagine any significant share of economic activity moving online without the protection OLTP offers.

OLTP is technically difficult because a single entry might catalyze changes involving many data types across many application and operating system environments. Such complexity can make it difficult to recover after an error. It can be hard to define a transaction processing metric. Nonetheless, by the early '90s several large transaction systems (such as airline reservation systems) were performing well. We thought the CIOs responsible deserved a toast—and they did. Only one little tweak was still needed. Once that had been made, OLTP seemed likely to become a world-beater.

That tweak was moving OLTP from mainframes to distributed architectures. It was necessary because everyone knew that distributed processing was better. It

new products

Continued from Page 172

be utilized by geographically dispersed development teams. The product includes bug tracking, patch management, source control, support tracking, document management and more. SourceForge can also help development teams implement code reuse and archiving. The product's Web-based interface makes it suitable for use across a variety of platforms. For more information, visit www.valinux.com or call 510 687-7000.

Slimline Power

Tripp Lite recently unveiled a new line of uninterruptible power supplies that provide as much as 3,000 volt-amps in a 2U cabinet. The **SmartPro 2U** series include as many as two serial ports and two USB ports, providing multiple server control. It also includes PowerAlert software that lets administrators monitor all available UPS systems on a network. Administrators can also control the systems from any browser-based device by logging into a secure website. To save even more space, the devices are designed to fit back-to-back, allowing for a pair of RM2U systems to occupy the same slot in a rack. Pricing had not been set at press time. For more information, visit www.tripplite.com or call 773 869-1797.





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NetScout Systems, Inc.
ProSight, Inc.
ServiceWare
SiteSmith, Inc.
Symantec Corporation
Tripwire, Inc.



*the
new*

WORLD — reshaped by the Internet, e-commerce, new technologies, global mergers and alliances. Where radical change has caused continual shifts in an already complex IT environment. Where traditional boundaries have been redrawn or virtually erased between countries, between cultures, between IT and the rest of the organization.

■ **ENROLL NOW** — See the full agenda and use the online form at our Web site www.cio.com/conferences, or call our hotline at 800 366-0246.

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COVER ILLUSTRATION: VALERIE SINCLAIR

JOIN US AS WE EXPLORE

the forces

shaping this dynamic environment, and examine the resulting intersection of IT with a whole new host of legal, ethical, cultural, human resource, and business issues. We'll look at how the near and long-term future of technology will only accelerate these processes.

In this turbulent new world, we'll need to continuously re-evaluate and reinvent — maybe even get revolutionary. And who better to lead the revolution than Gary Hamel, the man *The Economist* calls “the world's reigning strategy guru.” Hamel will help us cross the boundaries between old and new ways of thinking about strategy innovation, wealth creation, and the

very process of continuous re-invention. He'll deliver Tuesday afternoon's keynote address, and will be on hand afterward during a networking reception. Participants will receive a signed copy of Hamel's newest book, *Leading The Revolution*.



Gary Hamel
Author
Leading The Revolution

Joanne Ciulla, author of *The Working Life: The Promise and Betrayal of Modern Work*, questions where we're heading as a society — and what that means for us as

employees and employers. We'll examine how new technologies are blurring the line between our work and personal lives.

Without *Boundaries:*

THE CIO IN THE NEW WORLD

Hackers and cyber terrorists recognize no boundaries. Stephen Colo, CIO of the US Secret Service, will continue our series of dialogues with The US Department of Commerce's Critical Infrastructure Assurance Office (CIAO) to discuss what business leaders, CIOs, and government agencies can and should be doing to protect against future attacks.

Edward Nesta, senior vice president of Operations and CIO of The Leading Hotels of the World, suggests how we can use technology to level the playing field when different countries, cultures and personnel are involved in selling and supporting products and services. Mike Ragunas, CTO of Staples.com, shares how we can implement and leverage technologies across sales channels, partners, suppliers and customers to improve service. NASDAQ's CIO Gregor Bailer and CTO Steven Randich exemplify some of the shifts taking place within the IT organization, where an increasingly complex set of responsibilities demands creative structures. Conference moderator Dr. Jim Wetherbe provides practical insight on rethinking and redesigning organizations and their boundaries.

A panel of emerging market CIOs from

around the world, moderated by Martha Gorman of the Global IT Knowledge Forum, examines how we can work together to lessen the digital divide between the technological haves and have-nots around the world, and why that's critical to a healthy global economy.



Joanne Ciulla
Author
*The Working Life:
The Promise and
Betrayal of
Modern Work*

Rick Richardson, president of Richardson Media & Technologies, looks at the new trends in technology, and offers his forecast for the future. And, Venture OnStageSM, moderated by CIO Magazine Technical Editor Chris Lindquist, once again brings five visionaries to talk about what their new technologies, products or services can do for CIOs.

But don't forget the fun stuff: Tee off Sunday morning at the Leaderboard Classic Golf Tournament hosted by Lockheed Martin and Intira Corporation. Network Sunday night at the Welcome Reception, and then laugh 'til you hurt at an Evening at the Improv, hosted by Information Builders. More activities will be scheduled throughout the event, capped off Tuesday night by the CIO-sponsored Reception and Dinner followed by Monte Carlo: An evening of High Rolling, Cool Jazz & Sweet Cigars hosted by Symantec Corporation.

8:00 am - 1:30 pm

Leaderboard Classic Golf Tournament
Hosted by Lockheed Martin and Intira Corporation

2:00 pm - 6:00 pm

Informal Networking

2:00 pm - 5:00 pm

Registration

6:00 pm - 8:00 pm

Registration & Welcome Reception

Get connected: Meet your fellow participants, featured presenters, CIO staff, and Corporate Hosts.

8:00 pm - 10:00 pm

Evening @ The Improv**Hosted by Information Builders**

Back by popular demand, Information Builders presents "A Night at the Improv." Join us for an evening of sidesplitting fun — direct from the world-famous Improv Comedy Club in L.A.!

10:00 pm - Midnight

Hospitalities/Networking

7:30 am - 8:30 am

Breakfast

8:30 am - 8:45 am

Welcome and Opening Remarks

Gary Beach
Group Publisher
CXO Media Inc.

8:45 am - 9:30 am

Breaking the Boundaries

Moderator:
Dr. Jim Wetherbe
Professor of IT
Texas Tech University

Most organizations are based upon 18th century accounting systems and 19th and early 20th century industrial organizational structure. Both interfere with performance and employee satisfaction. The 21st century knowledge-based economy requires organizational design and leadership that breaks down the borders between interorganizational boundaries similar to the way business reengineering broke down the boundaries between intra-organizational functions in the 1990's. Wetherbe will set the stage for the conference and provide practical insight on rethinking and redesigning organizations and their boundaries.

9:30 am - 10:30 am

Integration across Enterprises

Mike Ragunas
CTO
Staples.com

E-business is a core component of any business strategy today. For companies to get ahead in today's e-economy, e-business initiatives must eliminate boundaries to create a seamless organization. Staples has been recognized for its success in implementing and leveraging technologies that integrate information across sales channels in its own organization, with partners, suppliers and most importantly, customers. This session will discuss ideas on how technology can drive your business and how Staples has leveraged XML and other technologies to successfully integrate across enterprises, resulting in improved customer service.

10:30 am - 11:00 am

Coffee Break

11:00 am - 11:45 am

Business Briefings

Our Corporate Hosts and their clients discuss technologies and services to improve your enterprise's performance.

11:55 am - 12:40 pm

Business Briefings

12:45 pm - 2:00 pm

Working Lunch — Without Boundaries: The Law vs. Hackers and Cyber Terrorists

Stephen Colo
CIO
United States Secret Service

In the Internet world, hackers and cyber terrorists recognize no boundaries. Major hacker attacks are not only becoming more prevalent, but also far more dangerous to business and government. The US Department of Commerce's Critical Infrastructure Assurance Office (CIAO) asserts that business leaders and CIOs need to take more responsibility for systems and information security — but attacks will still happen. What help is available from law enforcement agencies and the legal system? And how can we help them help us?

2:15 pm - 3:00 pm

Business Briefings

3:15 pm - 4:15 pm

Without Boundaries: The Blurring Line Between Work and Life

Joanne Ciulla
Author
The Working Life: The Promise and Betrayal of Modern Work

Technology, the Internet and the global economy have created a 24/7 world. With laptops, cell phones, and a host of other handy gadgets, we can now work anytime, from anywhere. But just because we can, are we encouraged and expected to ... drag the laptop with us on vacation, have our office voice-mail forwarded to our personal cell phones, be virtually on-call all the time? The line between work and personal life gets blurry. Are we using these technologies to enrich our employees' lives by giving them more flexibility, or are we using them to pull the leashes to the office ever-tighter? What can and should we be doing to keep work from ruining our employees' lives?

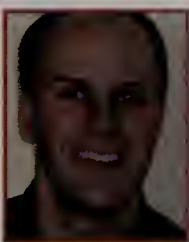
4:15 pm - 5:15 pm

Technology & Our eFuture

Dana R. (Rick) Richardson
President
Richardson Media & Technologies

Today's CIO is faced with an ever-changing future. It is one characterized by fewer traditional boundaries and being shaped by trends in hardware, software and communications. Rick Richardson will provide his vision of both our near and longer-term future as it relates to these trends, as well as new and emerging technologies that will help bring those trends to reality. Finally, Rick will put himself on the line with his forecasts of our technological future and where the new boundaries might be drawn.

5:15 pm - 6:00 pm

Venture OnStage

Moderator:
Christopher Lindquist
Technology Editor
CIO Magazine

Venture OnStage, introduced at our October *Perspectives*® conference, was a hit with the audience, so we're bringing another group of new technology visionaries to tell us what they think will be the next great thing.

6:00 pm - 7:00 pm

Networking Reception

7:00 pm - Midnight

Hospitalities/Networking

*CIO Perspectives is a registered trademark of CXO Media Inc.

agenda agenda

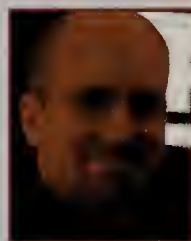
7:30 am - 8:30 am

Breakfast

8:30 am - 9:30 am

CIO vs. CTO: Where Do the Boundaries Lie?

Gregor Bailar
Executive Vice President & CIO
The Nasdaq Stock Market, Inc.



Steven Randich
Executive Vice President & CTO
The Nasdaq Stock Market, Inc.

There used to be a clear distinction between the CIO and CTO roles. The CIO was the business-savvy leader who helped the enterprise make wise technology investments, while the CTO was the chief lieutenant with a keen eye on emerging technologies that might help the business. Today the boundaries between the roles have blurred, creating confusion among business leaders: do they need a CIO, a CTO, or both? At NASDAQ, CIO Gregor Bailar recently hired CTO Steven Randich. They will discuss the distinction they see between the CIO and CTO roles, the boundaries and overlaps of their day-to-day duties, and how other businesses might address their own CIO/CTO needs.

9:30 am - 10:30 am

Beyond Borders: How Do We Level the Playing Field?

Edward F. Nesta
Senior Vice President of Operations & CIO
The Leading Hotels of The World

Technology can help level the playing field when different cultures, countries and personnel are involved in selling and supporting a company's product. CIOs have the responsibility for providing the tools, training and infrastructure that makes this possible — and for establishing and managing standards across time zones and cultures to create a consistent product. With the global reshaping that has resulted from the distribution of technology, the actions of CIOs, both economically and politically, are much more visible on the world stage. Their ability to support their respective business units, while also delivering a uniform and consistent product in the midst of these changes, is a necessity for both competitive and personal reasons.

10:30 am - 11:00 am

Coffee Break

11:00 am - 11:45 am

Business Briefings

11:55 am - 12:40 pm

Business Briefings

12:45 pm - 1:45 pm

Luncheon

2:00 pm - 3:00 pm

Narrowing the Digital Divide - International CIO Panel

Martha Gorman
Co-Founder
Global IT Knowledge Forum

Rather than create a world divided into information haves and have-nots, we must level the playing field for vast regions of the planet — or risk losing the contributions they can bring to the global economy. One way to accomplish this is bypassing expensive, intermediate solutions, in a process known as technological leapfrogging. Our panel of CIOs from emerging international markets discuss how we can work together to create the conditions needed to foster such technological leaps in key industries and regions.

Panelists:

Luiz Alberto Mourellos Rodriguez, Director TI, IDICT, La Habana, Cuba

Manuel E. Ruiz Gutierrez, MIS Manager, Dole Standard Fruit Co., Costa Rica

Wan Othman Wan Yahya, CEO, Integrated Document Services, Kuala Lumpur, Malaysia

Dr. Ian Kadish, IT Director, Netcare, South Africa

agenda

TUESDAY, APRIL 24

3:00 pm - 3:45 pm

Business Briefings

4:00 pm - 5:30 pm

Keynote: Strategy, Innovation and Continuous Reinvention**Gary Hamel***Author**Leading the Revolution, Competing for the Future*

Visiting Professor of Strategic and International Management

London Business School

In an increasingly non-linear world, only non-linear strategies will create new wealth. Yet few companies seem able to spawn imaginative, wealth-creating strategies. Any company that wants to thrive in the turbulent new economy will have to learn how to harness the passion and imagination of every employee in the quest for strategy innovation. It will have to learn how to reinvent itself not once a decade, in the midst of a crisis, but year by year while still at the peak of performance. "Industry revolutionaries" are upending conventions and aggressive newcomers are challenging the orthodoxies of incumbents. In this topsy-turvy environment, irrelevancy may be a bigger risk than inefficiency.

5:30 pm - 5:45 pm

Closing Remarks by Moderator Dr. Jim Wetherbe

5:45 pm - 7:00 pm

Networking Reception with Gary Hamel

7:30 pm - 9:30 pm

Dinner**Hosted by CIO**

9:30 pm - 11:00 pm

Monte Carlo: An Evening of High Rolling, Cool Jazz & Sweet Cigars*Boca Raton Beach Club***Hosted by Symantec Corporation**

venue —



The Boca Raton Resort & Club in Florida, cloistered on 356 acres in fabled Palm Beach county, is a welcoming venue for our CIO

Perspectives community. Spend some extra time before or after the conference, bring the family — but make your reservations now because space is limited and it's prime vacation time! Call the resort at 561 447-3000, and don't forget to mention you'll be attending CIO *Perspectives* to get our special rate.

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ACXIOM CORPORATION, a global leader in real-time, multi-channel Customer Data Integration, enables businesses to develop and deepen customer relationships by creating a single, accurate view of their customers across the enterprise. Acxiom achieves this by providing data integration technology, database management services, and premier customer content through its AbiliTec, Solvitur, and InfoBase products, while also offering a broad range of information technology outsourcing services. Founded in 1969, Acxiom (Nasdaq: ACXM) is based in Little Rock, AR, with locations throughout the U.S., and with operations in the United Kingdom, France, Spain, Australia, and Japan. Acxiom revenues were \$964.5 million in the fiscal year ended March 31, 2000. For more information, please visit www.acxiom.com.

Changing Privacy Issues to Opportunities

Given the continued growth of e-commerce, the proliferation of marketing databases and a surge of negative media attention, consumer privacy concerns and legislation continue to intensify. Businesses must address privacy issues quickly and legitimately or face the prospect of additional governmental regulation and rising consumer distrust. How can technology assist companies in implementing a pro-active consumer privacy strategy? Customer Data Integration (CDI) software can help companies honor individual privacy rights and manage customer preferences by integrating customer data across the enterprise — creating a single-view of the customer across multiple channels. This enables businesses to move beyond privacy protection and toward consumer advocacy. In this session, you will discover how true consumer advocacy represents a significant opportunity for businesses to improve customer loyalty, boost retention and increase market share.



AVAYA, the former Enterprise Networks Group of Lucent Technologies, is headquartered in Basking Ridge, N.J., USA, and is a leading provider of communications systems for enterprises, including businesses, government agencies and other organizations. Avaya offers voice, converged voice and data, customer relationship management, messaging, multi-service networking and structured cabling products and services. It is a worldwide leader in sales of messaging and structured cabling systems and a U.S. leader in sales of enterprise voice communications and call center systems. Avaya has nearly one million business customers in more than 90 countries, including more than three-quarters of the *Fortune* 500. For more information about Avaya, visit us on the Web at www.avaya.com.



John Stevenson
Vice President & CIO
Avaya

Moving a Corporation to a Forecasting Model 'Without Boundaries'

Many corporations, even in the new millennium, still await information that is historical in nature before making decisions that affect where the corporation needs to be prioritizing its resources. ERP applications have brought us real time information views across the corporation, but is that enough? To transform a corporation into a true forecasting organization takes information tools, seamless integration and a cultural transformation. Avaya is making this transformation. It is midway through the steps on its 18 month path from history gathering to a forecasting view of running its business. This session will focus on the tools, activities and cultural boundaries encountered in this transformation.



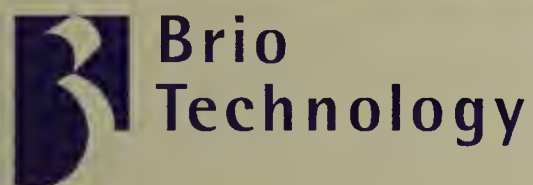
BLUE MARTINI
SOFTWARE

BLUE MARTINI SOFTWARE provides enterprise software applications to understand, target and interact with customers. Companies deploy the Blue Martini Customer Interaction System to interact with customers on the Web, via call centers, in stores, over wireless devices, through e-mail, direct mail and on marketplaces. Business people use the Blue Martini Customer Interaction System to manage products, content, transactions, analysis and personalization. Companies that interact directly with customers build their brands more effectively than those using only traditional media, resulting in increased revenues across all channels.

Monte Zweben
CEO & Founder
Blue Martini

Driving B2B Revenues: Direct, Indirect, and Trading Exchanges

According to AMR Research, B2B e-commerce should reach \$5.7 trillion in 2004 or 29% of the dollar value of all commercial transactions. B2B e-commerce will be huge and will have a significant impact on the enterprise. Thus, for most companies, it is not a question of whether they must participate in B2B e-commerce, but one of when and how. But what is B2B e-commerce? How do you achieve the promise of B2B e-commerce while complementing your existing channel models? Zweben leads a discussion on how to enable contract-based e-commerce relationships with your B2B customers, empower your resellers to sell better, and participate in trading exchanges without commoditization.



BRIO TECHNOLOGY provides a proven and reliable analytic software platform that enables companies to simplify the complex process of using corporate data to make better day-to-day decisions. Brio ONE products empower individuals, workgroups and executives in an organization to find, access, share, manage, and exchange information across an Internet enabled enterprise. More information can be found on our web site: www.brio.com or by calling 1-877-289-BRIO.



Katherine Glassey
Chief Strategy Officer
Brio Technology, Inc.

Without Limits: A 360° View of Your Enterprise

Today's changing business climate makes it essential that information is readily available and in actionable form at all levels of the organization. As competition continues to escalate, both large and small companies are having to analyze not only external factors (i.e. competition, marketshare, etc.) but its own operations, including expenses, sales, and profitability at a departmental level. Looking at it from a CIO's perspective, this discussion highlights how the market has changed, where it is going, and how an organization can become successful, one department at a time. Glassey shares how analytics are essential in today's leading organizations to become more efficient — empowering employees, partners and customers with the ability to access and analyze business information.



In business nearly 25 years, **CANDLE CORPORATION** is one of the world's largest independent global software companies specializing in fast, flexible e-business solutions. Operating in over 42 countries, Candle develops and markets over 300 products and services that enable companies to create, integrate, manage and measure the effectiveness of their e-businesses. Candle's solutions provide the speed, agility and performance that are mandatory for success in the world of e-business. Visit Candle at www.candle.com.



David Caddis
Vice President and
General Manager of
e-Business Assurance
Solutions
Candle Corporation

Customer Service in an e-Business World

As companies experience unprecedented online activity, CIOs are striving to ensure that their Web site and applications keep pace with the fast moving world of e-business. Caddis will explore best practices to guide CIOs in developing a business model for today's ever changing Internet economy while assuring the quality of service received by online customers.



CHANGEPOINT provides the most complete business process automation solution for IT services organizations to manage their people, projects and budgets more effectively and profitably. Designed specifically to address the needs of IT professional services organizations, corporate IT departments and the staffing companies they work with, Changepoint enables IT services organizations to better operate by automating and streamlining critical business processes for greater efficiency, and inter-operate by seamlessly integrating and collaborating with staffing suppliers, contractors, clients and partners.



Avery Cloud
Vice President and CIO
INTEGRIS Health

Courtesy of
Changepoint

The Changing Role of IT in Today's Corporate Culture

In today's information technology age, the IT department is not only relied upon to support the business, but to drive the business forward. Cloud offers his insight on the ways that IT now fits into the corporate culture, touching on how the relationship of professionals and the business operators has evolved over his 25 years of IT experience. Cloud will share some of his experiences on the role of technology in shaping the business plan and how that role should be defined, as well as outlining the new structure that IT organizations must adopt.

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Chordiant

CHORDIANT delivers a unified CRM (customer relationship management) solution for companies with extreme customer demands in terms of volume, complexity and scope. By integrating multiple sources of information across an enterprise, Chordiant Unified CRM Solution provides a comprehensive, single view of the customer to ensure personalized one-to-one service. Regardless of the point of customer contact — email, telephone, wireless device, Internet — companies can make the most of every customer interaction, increase retention, grow revenues and drive profits.



Stephen Kelly
*President and Chief
Operating Officer*
Chordiant Software, Inc.

**Customer Relationship Management:
It's Not Just Software
Achieving Intelligent Customer
Communications Management**

The typical customer service experience has died under the weight of mass consumption and new e-Business distribution channels. Worldwide, the burden of inbound customer service requests threatens to bury companies facing extreme IT demands. In this hostile environment, proper management of each and every customer interaction has never been more critical to survival. Meeting these challenges head-on, many European consumer businesses, such as banks and financial services companies, are leading the way in exceeding customer expectations. In Europe, where CRM is considered a business strategy enrolling the use of an IT architecture to deliver this capability, it is referred to as "Intelligent Customer Communications Management." In his presentation, Kelly will describe this architecture and illustrate its use with real case studies of major European companies with which he has worked.



CITRIX SYSTEMS, INC. is a global leader in application server software and services that offer "Digital Independence" — the ability to run any application on any device over any connection, wireless to Web. Citrix solutions enable organizations of all types, from enterprises to application service providers (ASPs), to reach more users with more applications, and achieve this with greater speed, predictability and cost-effectiveness. Citrix offerings include MetaFrame application server software, NFuse application portal software, Management Services products and Independent Computing Architecture (ICA), a core application server technology. Citrix is headquartered in Fort Lauderdale, FL.

**Digital Independence through
Application Server Solutions**

By overcoming the traditional constraints and complexities of e-business technology, CIOs have the power to reach more users, with more applications, than ever before. By having the ability to run any application on any device with any connection, wireless to Web, CIOs may increase speed of operations with greater predictability and lower costs. As a result, organizations can compete most effectively in today's digital age — a dynamic age of e-business, the Internet and the continual addition and evolution of new applications, devices and services.



E.PIPHANY is a leading provider of intelligent customer interaction software for the Customer Economy. By providing an integrated suite of software solutions, E.piphany E.5 blends web-based analytic and operational CRM to unify all inbound and outbound marketing, sales and customer service interactions. E.piphany E.5 enables a single, enterprise-wide view of each customer to help global businesses better understand and proactively serve customers in real time. With worldwide headquarters in San Mateo, CA, E.piphany has regional operations and offices throughout the U.S., Europe and Asia Pacific.

Bill Walsh
*Executive Vice President and General
Manager, International*
E.piphany

**CRM: A Technology without
Boundaries**

Today's Customer Economy is a global force, and companies with operations around the world are using CRM for competitive advantage. In its own global expansion, E.piphany has uncovered that each global market has a different business requirement, and these different regions are approaching CRM in a variety of ways. In this session you will learn how to globalize your CRM efforts, what the leading customer-centric business requirements in major global markets are, and hear remarkable success stories about leading global companies.



EDS, the leading pure-play global services company, provides strategy, implementation and hosting for clients managing the complexities of the digital economy. We bring together the world's best technologies to address our clients' critical business imperatives. We help clients eliminate boundaries, collaborate in new ways, establish their customers' trust and continuously seek improvement. In fact, everything we do helps enterprises win in the digital economy. We serve the world's leading companies and governments in about 55 countries. Learn more about us at www.eds.com.



Dr. A. Reza Jafari
President of the EDS
Communications,
Entertainment and
Media Global Industry
Group
EDS

Mobility: The Engine that Drives the Digital Economy

For more than a year, we've been hearing about "mobile" communications — the ability to stay connected anytime, anywhere and any way. Yet, amidst the hype and confusing claims, many are missing the opportunity to fully harness the power of mobility. Dr. Reza Jafari will discuss what it takes to succeed in the digital economy through full-fledged mobility. He will cover the value of a viable business value chain and the importance of scope and scale in meeting the needs of businesses and customers alike. Through a discussion of real-life examples, session participants will learn how to achieve digital freedom through a spectrum of capabilities using wireless and wireline transmission — at work, home and play.



HEWLETT-PACKARD COMPANY — a leading global provider of computing and imaging solutions and services — is focused on making technology and its benefits accessible to individuals and businesses through simple appliances, useful e-services and an Internet infrastructure that's always on. HP has 88,500 employees worldwide and had total revenue from continuing operations of \$48.8 billion in its 2000 fiscal year. Information about HP and its products can be found on the World Wide Web at www.hp.com.



Rich Raimondi
Vice President and
General Manager,
E-services.Solutions
Hewlett-Packard
Company

How to Capitalize on E-Services

E-services are the next big Internet wave. Quickly growing in popularity, these services consist of software, computing resources, information, business processes, and any other asset that a company can digitize and deliver over the Internet. Raimondi will discuss how forward-thinking companies are capitalizing on e-services to quickly generate new revenue streams and lower costs. He'll explain how the spread of mobile information appliances is creating a lucrative market for mobile e-services. Raimondi will also consider the role that partner ecosystems play in e-services and will discuss the importance of an always-on infrastructure to deliver those e-services.

Information Builders

INFORMATION BUILDERS helps leading organizations, including 92 of the *Fortune* 100, drive operations and maximize opportunities through the power of information. We provide the only comprehensive business intelligence software solutions with built-in access to any data and the ability to handle all enterprise reporting requirements, including portals, OLAP, ad hoc, and information broadcasting. Our solutions enable organizations to transform themselves to e-businesses more quickly and cost-effectively by integrating core business systems and data, including legacy and ERP, with new technologies such as wireless and XML, for the rapid development of B2B, B2C, CRM, and intranet systems. For more information, visit us at www.informationbuilders.com.



Michael Corcoran
Vice President of
Marketing
Information Builders

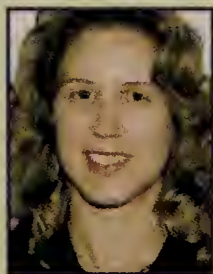
i-Business Intelligence: Today's Strategic Weapon

e-Business is a given. i-Business is the challenge. Most organizations spend billions collecting data, only to use less than 7%. Market leaders will be those that move closest to 100%. The business of the future acts quickly, anticipating change and improving business processes. With i-Business, you can not only automate business processes, you can improve them. How much more intelligent can you make your business processes? How much more insight can you give your managers and employees into the business so they can take effective action? How much more integrated can you make your supply chain and enterprise? How much more interactive can you be with your customers? Hear how leading organizations are dealing with these challenges by providing information to their managers, partners, customers — including mobile users.

corporate hosts and



For over three decades, **INTEL CORPORATION** has developed technology enabling the computer and Internet revolution that has changed the world. Intel is at the forefront as a primary building block supplier for the Internet economy. Today, companies incorporate Intel architecture-based solutions across their connected business and IT environments to create successful e-Business infrastructures: from Internet servers to data center systems, desktops to workstations, and laptops to network PCs and online services. For more information on Intel and its role in e-Business, visit us on the web at www.intel.com/ebusiness.



Carol Lee Cobb
eMarketing Strategist
Intel Corporation

The Critical Challenge of Customer Service

With the Internet driving an increased demand for personalized service, instant information and collaboration, customer service has become a critical challenge in the Internet economy. However, customer service is often not given the same high priority as other mission-critical business issues. But how do you implement a customer-centric e-business solution in this demanding environment? What is possible with today's technologies? We'll explore three real-world case studies that illustrate how e-business companies and customers are implementing customer-centric solutions to solve real business problems today. A proof-of-concept prototype of a customer-centric e-business solution will be shown and distributed to each participant.



INTEL ONLINE SERVICES provides global web services that manage the complexities of e-Business computing. We focus on delivering a better overall customer experience by combining integrated technologies and proven processes to provide services with built-in reliability, scalability and optimal performance. We offer a broad spectrum of services, including managed web hosting, database hosting, application hosting, caching and streaming media, backup and recovery, scalable data storage, and global service delivery and load balancing. Visit www.intelonlineservices.com.

Renee James
World Wide Director of
Marketing and Customer Services
Intel Online Services

An Integrated Approach to Outsourcing e-Business

The Internet is now reaching out to every corner of the planet touching billions of people and businesses, and maturing at an incredibly rapid pace. The Internet's many facets — network infrastructure, ISPs, ASPs, hosting, servers, clients and services—are beginning to move toward specialization as various companies develop areas of core competency in specific service segments. With this development comes new challenges and new opportunities. Intel® Online Services provides global web services that manage the complexities of e-Business computing. We focus on delivering a better overall customer experience by combining integrated technologies and proven processes to provide services with built-in reliability, scalability and optimal performance. By offering outsourced e-Business solutions using best-in-class applications, we fill the void left by the specialization trend in the market.



KINTANA: Powering Business Transformation with Technology Chain Automation. Kintana provides an enterprise application bringing speed and control to business initiatives and technology operations. More than 200 leading companies use Technology Chain Automation from Kintana to automate business and technology processes, gain real-time visibility and control of IT initiatives and leverage their technology investments. The results? In a few weeks, tenfold speed and productivity gains in IT. Please visit www.kintana.com or see us at *CIO Perspectives*.



Andy Starr
Director of Information
Technology
Cisco
Courtesy of Kintana

Cisco's Approach to Business Transformation; Powering the Cisco Connection Online with Kintana

Ninety percent of Cisco orders are processed through a critical e-commerce application called Cisco Connection Online. It brings together 400 content developers, 700,000 data files, and 175 applications to generate \$55 million in revenue every day. Managing CCO is an enormous challenge. Gaining visibility and control over the site's ongoing initiatives and operations is key to success. Cisco worked with Kintana, creators of technology chain automation, to achieve secure, systemized processes, self-service reviews and approvals, and automated deployment of new site features. This has allowed Cisco to reduce the size of the site's management team by 25 percent, even while revenues through CCO have quadrupled. Starr tells how Cisco transformed one of the world's largest e-commerce sites.



LEGATO SYSTEMS, INC. (NASDAQ: LGTO), is a worldwide leader in enterprise storage management. Helping companies leverage business-critical, corporate data assets, Legato's products and services enable information continuity, a seamless approach to the movement, management and protection of data throughout an enterprise. Founded in 1988, Legato serves *Fortune* 1000 companies and has become the recognized industry standard for storage management software products, currently shipping to 30 of the 50 *Fortune* e-50 top businesses. Legato is a founding member of the Storage Networking Industry Association.



George Symons
Vice President, Product Development
Legato Systems

Information Availability Requirements for the Enterprise Service Provider

This talk discusses the transition enterprise IT organizations are going through to deliver on service level objectives. These IT organizations are feeling pressure from internal customers to commit to service level objectives in the same way that service providers are beginning to do. In addition, market trends and the challenges of a multiple platform open systems environment and the complexities it brings are discussed. Finally, a set of criteria is presented, including short-term and long-term strategies, along with product functionality so companies can meet service level objectives easier.



NETSCOUT SYSTEMS, INC. is the leading provider of infrastructure performance management solutions for leading companies and service providers worldwide. Headquartered in Westford, Massachusetts, NetScout serves approximately half of the *Fortune* 500 with offices in North America, Europe and Asia. NetScout's flagship solution is the nGenius™ Performance Management System, a suite of network management software and hardware products that optimize the performance of the network and its ability to deliver applications and content to end-users. For more information on NetScout go to www.netscout.com



Bruce Kelley
Vice President Engineering
NetScout Systems, Inc.

The Top Five Secrets of Making Your Network Infrastructure Investment Pay

Why is network management suddenly so HOT? With the Internet a widespread means of conducting business, the performance of the network infrastructure is now top of everyone's mind. In fact, recent studies indicate that networking infrastructures now rank among the top expenditures for any leading business. However, the challenge of deriving value from this spending remains huge. How do you maximize the performance of this complex network environment while delivering greater returns on your investment? In this session, Kelley will address the top issues facing CIOs today in managing their e-business networks. He will discuss the pros and cons of instrumenting a network, how to use key business metrics that measure overall performance, and how to tap into valuable network data sources that can lower total cost of ownership.



PROSIGHT combines a suite of IT management applications and services with just-in-time information to enable IT executives to effectively choose and execute an IT investment strategy that increases the value to the businesses they serve. ProSight's software allows IT managers to automate key IT processes such as portfolio management and life cycle management. At the same time, ProSight's applications are communicating critical real-time measures of IT performance and integrating practical knowledge to support timely decisions. All of this puts the CIO and senior IT team in control of the resources under their command. Learn more about ProSight by visiting www.prosight.com.



John Cimral
CEO
ProSight Inc.

Eric Nagel
Senior Vice President,
Domestic Operations
ALLTEL Information Services

In Search of Ariadne's Thread: How One Information Services Company's Unique Implementation of IT Management Software Enabled Effective Client Health Assessment

Similar to Theseus following the golden thread left by Ariadne to lead him out of the labyrinth, companies today are searching for that "golden thread" to lead them through the labyrinth to effective assessment of their service level to their customers. ALLTEL Information Services (Telecom Division) implemented ProSight's IT Management application to automate IT performance management and enabled them to dynamically assess the "health" of each of their many clients. This ability has allowed ALLTEL to lower the cost of service assessment, proactively respond to "health" issues in a quicker fashion, and provide insight into service dimensions previously unseen.

corporate hosts and



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Mark Tapling
President & CEO
ServiceWare

The New Definition of Customer Service

As use of the Internet expands, so does customer service delivery. Successful companies must expand their vision of customer service by not only applying intervention to address broken business processes, but by providing customers with the tools they need to be self-sufficient, and facilitate the speed of collaborative business. Concurrently, low switching costs and fleeting customer loyalty require that companies broaden their definition of the "customer" to include everyone that affects their business — employees, partners and shareholders. This presentation offers Tapling as an expert on the changing definition of customer service today while raising the question: what will customer service look like in 2010?



Founded in October 1999, **SITESMITH** is the leading provider of comprehensive Internet infrastructure managed services. The company develops and manages large-scale, complex Internet sites for Global 2000 companies to ensure performance, reliability, security and scalability. Providing a complete and flexible Internet infrastructure solution, SiteSmith Operations Platform automates the critical elements of site management including security, 24x7 monitoring, network redundancy and backup. The company has its U.S. Headquarters in Santa Clara, CA and its European Headquarters in London. Information about SiteSmith's services and world-wide office locations are available on the World Wide Web at www.sitesmith.com



Treb Ryan
Founder
SiteSmith, Inc.

The Promise of Managed Services

Does the management and architecture of your Web site give you a business advantage over your competition? In choosing where to host, what technologies to run and which MSP to handle the delicacies of your site, you are deciding your online fate. Ryan will explore the different offerings in the managed service space, and try to answer some of the questions you're facing: Is a co-location facility equipped to handle the 24x7 management needs of a Global 2000 Web site? Why do the various MSPs bring such differing perspectives about how to architect, manage and scale a site? And, are the co-location providers and MSPs fulfilling the promises they make to their clients? As we explore these questions, it will become evident that the promise of monitoring, high availability, site architecture, an operating platform, security and backup can have vastly different connotations — and a real impact on business advantage.



TRIPWIRE, INC. is the leading provider of data and network integrity solutions for Global 3000 companies and e-business corporations as well as key public sector organizations. Tripwire enterprise software provides the foundation upon which security, network management and risk management strategies are built. It ensures that organizations can be confident in the integrity of all "data at rest" in their network (source, destination, and all stops in between.) Tripwire customers include Intuit, AT&T, Ernst & Young and the U.S. House of Representatives. Tripwire is headquartered in Portland, Oregon with offices in Silicon Valley, CA, and 15 countries around the world. For more information about Tripwire, please visit our Web site at www.tripwire.com.



Charles Kolodgy
Research Manager
International Data Corporation (IDC):
Internet Security Program

Prashant Dubey
Vice President
Marketing & Business Development
Tripwire, Inc.

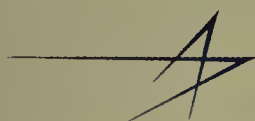
How CIOs Can Invoke Trust in IT: Data and Network Integrity

Cyber terrorism and hacker attacks have been a subject of media hype, and grand IT compromises have been highlighted for all in the industry to see. An IT infrastructure that does not have integrity can result in economic loss or even loss of market perception that can be a "bet the company" situation. In this session Kolodgy will describe the "state of the state" of Information Security and talk about progress made, challenges ahead and CIO strategies to overcome them. In addition he will discuss the concept of Data and Network Integrity (DNI) and how it is a foundation for an information security, network management and risk management strategy.

*The following Corporate Hosts
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SYMANTEC, a world leader in Internet security technology, provides a broad range of content and network security solutions to individuals and enterprises. The company is a leading provider of virus protection, risk management, Internet content and e-mail filtering, remote management and mobile code detection technologies. Headquartered in Cupertino, CA, Symantec has worldwide operations in more than 33 countries.

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*T*he companion program allows companions to join conference participants during designated meals and social activities at the **CIO Perspectives** conference and meet other companions for special activities. Plan your vacation with us in sunny Florida and enjoy brunch on the beach, a unique fitness class, and a complimentary shopping shuttle to exciting Mizner Park. Can you picture yourself as a culinary whiz? Participate in a special lunch that is hands on and led by one of Boca Raton Resort & Club's award winning chefs. If you can find any time left over from planned activities, visit the resort's luxurious health and fitness center where you can enjoy a relaxing spa treatment or indulge in one of the many watersports offered.





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We urge you to make your reservations early by calling the hotel at 561-447-3000 and identifying yourself as part of the CIO conference to receive the conference rate. **CIO will make hotel reservations for government/military participants only.** Be sure to guarantee your room with a credit card, as all unreserved or unguaranteed rooms will be released on March 23, 2001. Hotel reservations, cancellations and charges are your responsibility. If a CIO conference Enrollment Form is not received within 48 hours of making your hotel reservation, your room will be released from the CIO room block.

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was cheaper and more flexible than centralized processing. It “empowered the end user,” and who could be against that? Not developers, who were concentrating on network applications like Lotus Notes. Not investors, who at the time were dumping IBM like the shares were infected. The consensus was that in a few years, surely by 2000, big iron would be a dimming memory.

It is clear this prediction had a mixed outcome. First, building distributed OLTP applications turned out to be not so simple. In fact, it was “the major challenge of the last 10 years,” according to Stephen Cannon, vice president of technology for DCTI, an online payment processing service based in San Francisco. Cannon points

Turner, vice president for global enterprise server solutions at research company IDC in Framingham, Mass. (IDC is a sister company of CXO Media), worldwide mainframe factory revenue was \$4.5 billion in 2000; down from \$6.4 billion in '94. But the sector is far from extinct, and OLTP seems to be one of the reasons why. The technology has an insatiable appetite for moving huge amounts of data in and out of memory very quickly—a task at which mainframes are very good. Some of the newer mainframes, like IBM's Z900 series, are even better, since they are designed around OLTP-class memory handling from the start.

Users don't buy these mainframes instead of distributed systems; rather they

Building distributed OLTP applications turned out to be not so simple.

out that in distributed OLTP, clusters of data centers typically exchange changes among each other. This data center chaining both multiplies the opportunities for failure and complicates the problem of executing a verifiable rollback in the event of an error. Distributed OLTP also introduces uncertainties about the speed with which a server making a TP-related request is likely to get an answer. A decade ago, when transaction processing lived in a store-and-forward world, latency was not an issue. In a landscape dominated by real-time concerns like online credit verification, tolerance for such uncertainties is much lower.

On the other hand, now that many of these problems have been wrung out, OLTP has become huge, virtually defining the heart of such applications as payment processing, credit verification, reservations, customer relations management and inventory control.

One of the more interesting byproducts of this success, ironically, has been the mainframe's rescue. According to Vernon

buy them to integrate into distributed systems. You can distribute the transaction entry points and centralize the databases and transaction monitors; you can distribute the databases and just centralize the monitors. The monitors keep a checklist of all the locations where changes need to occur, a running log of executed changes, a capacity to detect when a change ought to have been made but wasn't, and the means to unravel all the work done to that point. They are impressive works of programming art.

In fact the terms themselves have pretty much broken down. The old culture wars between the priesthood of the glass house (the temperature-controlled throne room where the Order of the Mainframe performed its rites) and the rabble of the desktop are so over it is hard to remember what the arguments were about. At least in part, we have OLTP to thank for that. ■

No debit without a credit. No credit...no problem! We can help. Send your ideas for Revisits to et@cio.com.

new products

Java Juicer

Companies interested in developing server-side Java applications have a new tool for their box. **Allaire** has released **Kawa 5.0**, an integrated development environment that supports the Java 2 Enterprise Edition standard through Enterprise JavaBean and Java server pages. The product comes complete with a multithread debugger. It also integrates with leading Java application servers, including Allaire's own Jrun server. A single product license costs \$130. Bulk pricing and subscriptions are also available. For more information, visit www.allaire.com or call 617 219-2000.

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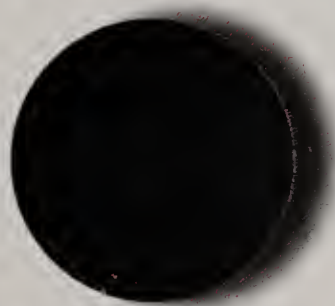
Iomega Corp. has announced the release of its **Zip 250MB USB Powered Drive**. The new drive is powered by the USB interface along its data cable, eliminating the need for an extra power cable and outlet, making the unit more convenient and easier to use. The drive can also be connected and disconnected from running computers without shutting them down. The unit has a list price of \$179.95. For more information, visit www.iomega.com or call 801 332-1000.

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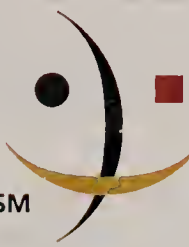
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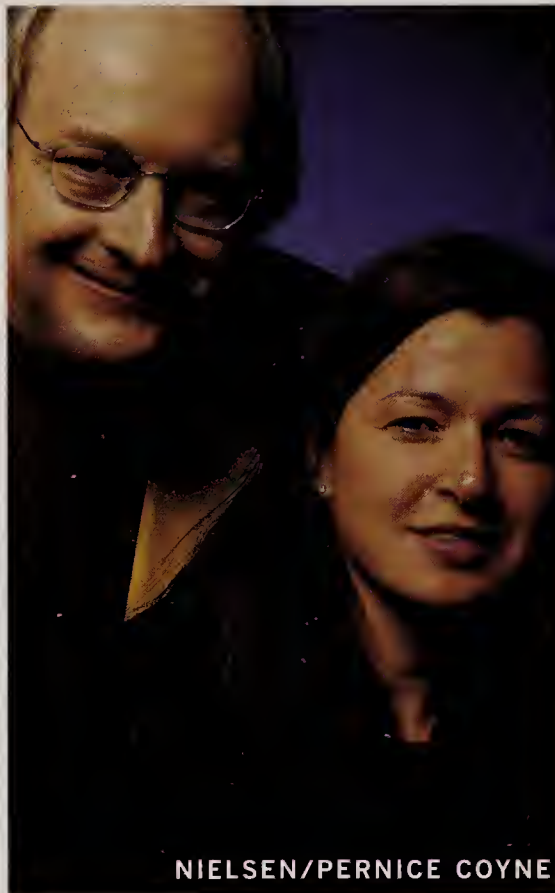
Jakob Nielsen and Kara Pernice Coyne

A Useful Investment

Usability testing costs—but it pays for itself in the long run

BY NOW MOST people in information technology have at least heard the word *usability*. What many don't know is how usability affects their organization's productivity and efficiency. For years, computer hardware, software and consumer products companies have invested in usability resources for the products they sell. What's amazing is that companies often neglect the usability of the internal systems their employees use every day.

Consider a customer service representative at a financial services company. Many times each day the representative opens the same few software screens to review customer accounts. Imagine that there is one design flaw that takes 10 seconds to overcome each time it appears. If this occurs even 25 times each day for 50 representatives, they'll waste more than 900 hours a year on this single usability issue alone. And research by noted usability expert Thomas Landauer at the University of Colorado shows that most software applications have at least 40 design flaws. At 10 seconds each, that translates to 36,250 hours wasted each year. But the flaws undoubtedly damage productivity even more severely than this example demonstrates, since people frequently waste more than 10 seconds when they encounter a usability issue. Beyond simply working around the flaw, you must also consider the recovery time users need to get back on track each time they lose their train of thought. The flaws' opportunity costs are also significant; the representatives' lost time could be better spent doing analysis or answering more calls. Your training budget is also part of the price of poor design.



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**Implement
truly usable
systems and
you'll minimize
the cost of
training and
support.**

IT systems should be easy enough for people to be able to just use them. Implement truly usable systems and you'll minimize the cost of training and support. Recently, Atlanta-based Cingular

Wireless, a joint venture between BellSouth and SBC Communications, did just that. By taking a user-centered approach to their new point-of-sale system, they saved about \$750,000 in training and internal support costs. "We were revamping our system, and I was asked to support the training," says Rob Lauber, executive director of learning services. "The attitude we took was, 'I can go to www.llbean.com and buy things. No one comes to my house to teach me how.' We thought our system should take this same approach," Lauber explains. "We evaluated each screen to match the user's task. Instead of investing in travel and living expenses associated with sending people out to train at 600 locations, we invested in the system itself. No formal training is required, and the effort cut expenses by three-quarters. It was a huge cost avoidance."

Cutting training costs by 75 percent may be on the high end of the savings one typically gets from usability. The biggest gains often come from savings on subsequent maintenance costs, since most requests for enhancements are because of a poor match between the original system's design and the users' actual needs. But proper usability design commonly cuts training costs by 50 percent and increases productivity by 25 percent. And there's one extra benefit that usability engineering practices can provide for your projects: Employees may actually start liking your company's internal software. **CIO**

About the Authors: Jakob Nielsen is a principal of Nielsen Norman Group in Freemont, Calif. Before founding this company, he was a Sun Microsystems distinguished engineer. His recent book, *Designing Web Usability: The Practice of Simplicity* (New Riders Publishing, 1999), has a quarter-million copies in print in 11 languages. Kara Pernice Coyne is a senior user experience specialist with Nielsen Norman Group. Previously, she managed the Lotus Notes and Domino products usability group and was a principal specialist.

ERP enable world-class
supply chain performance

FFA increase the productivity
of field workers

CRM instant
access to critical
customer information

Network Monitoring
escalate alerts & alarms
for quick resolution

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Unlock Online Stock Secrets

There's plenty of reputable investment information on the Web, but you have to know where to look **BY PERRY GLASSER**

YOU'VE HEARD THAT a nimble stock trader has the smarts to watch the news and the sense to know when the stock market will turn on a dime, but be careful of that up-to-the-minute information. Last August an enterprising young lad who knew how to cultivate the financial news grapevine issued a false press release about Emulex, a Costa Mesa, Calif.-based Fibre Channel equipment maker. Bloomberg News, Dow Jones and other reputable sources picked up the disinformation, and

Emulex stock plunged from \$103 to \$45 per share in 15 minutes. The "news" of the company president's resignation was baloney, but that did not prevent many investors from taking deep losses—while other investors enjoyed the buying opportunity of a lifetime. (Emulex, by the way, recovered nicely.)

Sophisticated investors can be distinguished from Wall Street pigeons by their ability to correctly identify advice, fact or opinion. It's all information of a sort. But while books about invest-

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Just be sure you understand and know your source. Then check again. As with e-commerce, when it comes to financial information, branding is crucial. After checking, remember that with breaking news, even the most trusted purveyors of

Facts mean little without the context to understand them. If reading a balance sheet and calculating ratios seems like less fun than reading Homer in the original ancient Greek, try Microsoft MoneyCentral's Research Wizard. For reasons known solely to Microsoft, it can only be reached after seeking a quote at moneycentral.msn.com/home.asp. Once you've

Remember that financial opinions are like bellybuttons—everyone has one.

information may have been deceived. As Andrew Grove said, "Only the paranoid survive."

WHERE TO GO

The U.S. Securities and Exchange Commission (SEC) site (www.sec.gov) can't be beaten for investment research. The Fed's watchdog of the financial community offers public access to EDGAR, the Electronic Data Gathering, Analysis and Retrieval system. EDGAR collects, validates, indexes, accepts and forwards submissions by companies and other entities that are required by law to file forms with the SEC. If you are a novice at investment research, EDGAR takes some getting used to, but since news of insider trading, unaudited quarterly reports and annual reports are all there, knowing how to mine EDGAR for information is an important skill. The interface itself is point-and-click easy. If you don't know your 8-K from your 13D, start with the EDGAR form definitions. The SEC site also fields investor complaints, proffers advice to small businesses and supplies links to organizations that do likewise.

entered a company's trading symbol in the search field, the Wizard will take you through a succession of screens that will not only present data, but will also help you evaluate information by explaining its importance. You'll learn all the elements of a company's fundamental financial position, its price history, analysts' price-target consensus and possible bad news, and you'll be presented with a chart that makes it easy to compare competing companies. If you've ever wondered just why debt/equity or price/earnings ratios are important, here's your chance to find out.

ALWAYS BE WARY

Once you depart the land of facts and enter the realm of financial opinion, remember that opinions are like bellybuttons—everyone has one. A source's reputation is crucial, so as you log on to a Yahoo or an NBCi finance chat room, bear in mind that the self-identified knowledgeable senior executive giving you the inside scoop may actually flip burgers and wear a hair net. That said, if for some reason your formal education

didn't cover the difference between momentum and value investing, enroll right away at Fool School (www.fool.com/school.htm). The print versions of the Motley Fool investment guides have been best-sellers because they offer straight talk and simplify complicated subjects. True, the Fools have a definite point of view (for one thing, they think most mutual funds are for suckers), but they are up front about their bias.

As with any game, it takes time to play the stock market well. No one says you have to put every dime at risk, but with a small investment of your time, you can buy yourself a large sense of control over your financial destiny.

Perry Glasser currently works as the managing editor of Illuminata Inc. E-mail your comments to him at pglasser@illuminata.com.

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New Orleans: Bad to the Bone

The Big Easy is kind of spicy, a bit funky and more than a little naughty **BY HONEY NAYLOR**

PEOPLE OFTEN mistake New Orleans for the capital of Louisiana. It isn't (that honor goes to more sedate Baton Rouge), but it certainly qualifies as the cultural and social capital. The city is renowned for its music, its cuisine and its nightlife—especially the French Quarter, home to naughty, bawdy Bourbon Street.

Music is an inescapable element of the New Orleans scene. The New Orleans Jazz and Heritage Festival is a spring milestone, and the refrains of Mardi Gras and the Essence Music Festival echo throughout late winter and midsummer, respectively. Guided by their ears and *Off Beat* magazine (944-4300, or pick up a free copy at local restaurants, clubs and hotels), music lovers search out the sounds of soul, rhythm and blues, jazz, and zydeco at clubs like the Funky Butt (558-0872) and Donna's (596-6914).

Creole cooking is one of New Orleans' lesser forms of sin. As the good

Brassy describes both the sound and style of New Orleans.

times capital, the city naturally throws a mean table. Antoine's

Restaurant (581-4422) is the patriarch of dining halls, having served its first patron a mere 74 years after the world's first restaurant opened in Paris in 1766.

Besides the established eateries like Arnaud's (523-5433), Galatoire's (525-2021) and Commander's Palace (899-8221), fresh interpretations arrive in a steady stream, fulfilling native Orleanians' desire to eat, drink and be merry. Cuvée (587-9001) on Magazine Street is one of the newest, joining slightly older Emeril's (528-9393) in the Arts District and Red Fish Grill (598-1200), which adjoins the fabulous Storyville District (410-1000), a relatively new

jazz club in the French Quarter. If you leave the table even slightly hungry in this town, you have not been paying attention.

The city is accustomed to hosting upward of 10 million visitors every year; to make sure they're well cared for, it boasts super-deluxe hotels like the Windsor Court Hotel (523-6000) and the brand-new Ritz Carlton (524-1331). There is also a plethora of quaint hotels and lush bed-and-breakfasts housed in

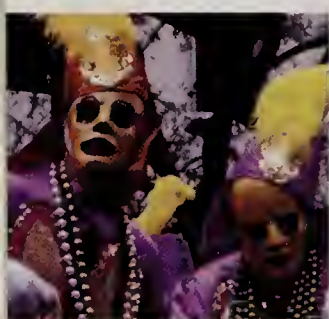
19th-century townhouses, like the House on Bayou Road (945-0992), the Claiborne Mansion (949-7327) and the Lanaux Mansion (488-4640).

New Orleans is also a mecca of style. Designers show up from across the globe to steal the incredible antique bargains away to the grand salons of Los Angeles and London. Besides the treasures on Royal Street, there are remarkable shops uptown on Magazine Street—think Greenwich Village meets Rodeo Drive. Looking for an antique lace wedding dress? Find a knockout here, along with stunning designer jewelry to complete the effect.

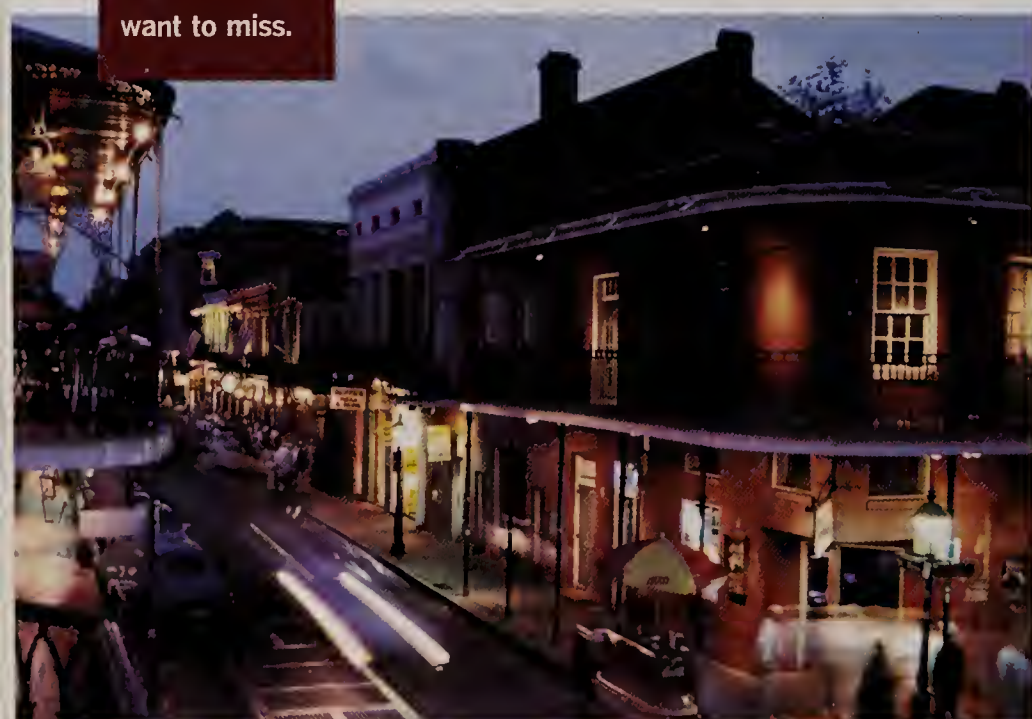
With more than 300 art galleries, steamboat rides on the Mississippi River, historic house tours, carriage rides under fern-draped balconies, beignets in the French Market and forays into the posh Garden District aboard the St. Charles Streetcar—the oldest continuously operating streetcar in the world—"La Nouvelle Orleans" has ample diversions. If you find yourself bored in New Orleans, you should check your pulse.

All telephone numbers are in the 504 area code.

Honey Naylor is a travel writer based in Ruston, La. E-mail her at magnolia@windsong.net.



The French Quarter is one spot you won't want to miss.



PHOTOS COURTESY OF NOMCVB. ABOVE, JACK EDWARDS; TOP LEFT, JEFF STROUT; MIDDLE LEFT, CARL PURCELL; BOTTOM LEFT, RICHARD NOWITZ

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health

Snooze You Can Use

Don't deprive yourself of nature's best medicine. Here's how to make sure you get the proper dose of rest.

BY CAROLE BODGER

THE WORKAHOLICS AMONG US would love to add useful hours to the day, but without adequate rest our health will suffer—and being sick takes considerable time indeed.

Lowered immunity to illness and stress, increased irritability, clouded thinking, slowed reaction time and physical weakness are just some of the negative effects of sleep deprivation. We make more mistakes, become forgetful and are more likely to react with our emotions instead of our heads. Even mild sleep loss can take a serious toll. More than 100 million Americans regularly fail to get a good night's sleep, according to a report by the National Commission on Sleep Disorders Research and the American Academy of Sleep Medicine (AASM) in Rochester, Minn. If counting sheep doesn't help, try these 10 easy bedtime tips.

Ten Steps to a Deep Sleep

1. Don't eat a heavy meal or drink too much (of anything) late in the day. Your body will have to stay awake to properly digest the food, and trips to the bathroom will interrupt whatever sleep you do get.

2. Cut back on caffeine, alcohol and tobacco. Avoid these stimulants—including soft drinks and chocolate—during and after dinner.

3. Follow a regular sleep schedule. Try to keep your internal sleep clock running on time, try to go to and get out of bed at the same hours every day, including weekends. Regular times for meals, chores and other activities also help you to establish patterns.

4. Develop a pre-sleep ritual. Consider a warm bath, a small glass of warm milk (milk contains tryptophan, an amino acid with sedative effects) and a chapter of a relaxing book. Remember: The purpose is to wind down, so skip the suspense thrillers.

5. Don't nap to catch up. The proper balance of mental and physical activity during waking hours will help you sleep better at night.

6. Make your bedroom a stress-free zone. Keep tension-filled tasks—like office work and required reading—out; keep the shades down and the television off.



7. Invest in a quality mattress and bedding. The benefits include both restful nights and more comfortable days.

8. Don't force yourself to slumber. Go to bed when you're tired and ready to fall asleep.

9. Exercise regularly. People with sleep disorders who participated in a moderate exercise program enjoyed better sleep quality, fell asleep faster and slept longer than those who didn't exercise, according to a study in the

The Journal of the American Medical Association. But don't put off exercising until too late in the day. The AASM recommends a minimum of six hours between sleep and a vigorous workout.

10. Don't lose sleep about how much sleep you need. The amount of sleep required varies so much from person to person and at different stages of life that putting a number on how many hours you should get could keep you tossing and turning all night long. One rule of thumb: If you find yourself yawning through the day, you need more.



Carole Bodger is a health and fitness writer based in Atlanta. Reach her, but don't wake her up, at cbodger@ga.prestige.net.

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New Economy Headquarters

Once-abandoned mill buildings are giving the phrase “bricks and clicks” a 21st-century spin

BY ELIZABETH DOUGLAS



NEW ENGLAND'S RED BRICK MILLS once churned out woolens and other textiles. Now they're humming to a different tune—producing the goods and services of the new economy.

Industrial age buildings are becoming new-economy offices all over the place. Wherever there are sturdy 19th and early 20th-century buildings standing vacant, real estate entrepreneurs are converting them to relatively inexpensive office space.

“Adaptive reuse is becoming a national watchword because of smart growth issues that are important nationwide,” says Richard C. Stanland Jr., president of the Society of Industrial and Office Realtors (SIOR) for 2000 and vice president of office and leasing company Edens and Avant Realty in Columbia, S.C. SIOR estimates that in 2000, there were 3.5 billion square feet of office space throughout 128 major U.S. cities. As prosperity and the Internet revolution continue to tax the limits of existing real estate, Stanland says, responsible growth must include using older buildings.

The economic advantages of space in these older buildings, as well as the design potential, are very real. When Internet energy marketplace Enermetrix moved into the old American Woolen Mills building in Maynard, Mass., in 1998, the rent

Old mill buildings have a fresh look—the space and face of the new economy.

was about half the going rate in nearby Boston or Cambridge, says Jeff DeWeese, vice chairman and founder.

If there were any spaces remaining in what is now called Clock Tower Place (CTP) (which has a total of 1.1 million square feet), says Joe Mullin of Wellesley Companies, CTP's holding company, they would go for about \$20 to \$25 a square foot. In late fall 2000, conventional office space in Boston cost about \$58 a square foot. Before that, American Woolen Mills used the premises to make uniforms for the Union Army, then for Russian troops during World War I.

Enermetrics's 25,000 square-foot headquarters reflects its personality: hard-working, cutting-edge, clear-eyed and no-nonsense. The inner workings of the space—overhead pipes and ducts with lights cutting diagonally across the ceiling—are plainly and proudly visible. Form may follow function, but lofty ceilings give employees a sense of space, and the aged brick soft-

ens the stark color scheme.

Similar conversions are happening all over the country. For instance, on the coast of Maine, MBNA, the giant independent credit card company, has taken over old eyesores in Camden and along the Belfast waterfront, turning them into great new working spaces or tearing them down to open up the harbor view.

The sprawling Sprague Electrical facility in North Adams, Mass., is now a cutting-edge art facility, the Massachusetts Museum of Contemporary Art, the largest modern art exhibition space in the United States. It's lofty enough to accommodate giant paintings and sculptures. When it opened in 1999, the museum reserved 60,000 square feet for new media companies and businesses working in the arts—there isn't a square inch left. **CIO**

Elizabeth Douglas writes about design from her home office, which has never been a mill, in Rockport, Mass.

PHOTO BY DOUG HARP



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Opinion

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CIO Confidential

Only the Names Have Been Changed

How to Fire Your Best Friend

BY ANONYMOUS

REMEMBER XENO'S PARADOX from those richly rewarding high school math classes? In case you don't, it's a mathematical absurdity that goes: If you travel from point A to point B, you necessarily must travel half of the distance to point B before traveling all of the distance. Now from that point, you must again travel half of the remaining distance. If you continue to do so (always traveling half the distance) you will never reach point B.

The fact that we do, on occasion, reach point B is, in a very roundabout way, proof that we not only live in a digital age and digital economy, but in a digital reality. In spite of what our senses tell us about our shades-of-gray experience and what the social arbiters tell us about the absence of absolutes, there



exists in the universe measures so small they cannot be halved, distances so short they take no time to travel, endpoints so close together even the slimmest prevarication cannot be wedged in.

It was very early on one of those gray January mornings. I had to dash out before I could finish my bowl of CIO chow to meet a dozen or so of my top development folks and an assortment of department heads from around the company. The

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meeting had been hastily assembled to discuss a project that had apparently and very suddenly—after nearly 10 months of on-schedule, on-budget progress—gone badly off track. The key objective of the meeting was to get a handle on where we were and to decide what, if any, changes we would need to make to keep our promised delivery date.

While I had been following the project with the regularly scheduled project updates and tracking reports, this was one of perhaps 50 major efforts we had underway at the time. As always, close scrutiny was reserved for the five or so projects

My general impression of Ellison, haircut aside, is that he is not the devil. I suspect, though, that when he meets the devil (a certainty in my estimation), he won't need an interpreter.

that were currently circling the drain. This project never appeared to be doing that, so I was unprepared for this meeting and what I was about to find out.

Leading the discussion was one of my vice presidents of application development, the individual in charge of the project and, as it happens, a close, personal friend. He and I had worked together for a very long time. We'd been through a lot. Our children were close in age, attended the same schools and played on the same sports teams. Our wives were friends, too, and usually organized a social get-together at least once a month.

When I walked in, he was attempting to explain the previous night's dismal technical and user test results in the context of what the project was reporting just a week or two earlier. I had, at that very moment, the same sense of uneasiness and confusion I get when I see Braille on a drive-up ATM. I could tell by the way he was employing technical terminology as a shield, his body language, and the defensiveness of his answers that candor had jumped the track and was wandering somewhere along a road paved with good intentions. Heartbreaking. He was lying and, by the looks of things, he had been lying for quite some time.

Even today, armed with incontrovertible proof, I'm uncomfortable describing this guy as a liar. Like most everyone else in this industry, I have been conditioned to the notion that calling someone a liar isn't considered an assertion; it's simply an unfortunate pejorative applied to those advocating a particular point of view or in pursuit of a sale. This weird form

of tribalism routinely puts the needs of the bottom line or the agenda ahead of the truth. Everybody lies, the reasoning goes, and the transgression should not be measured in some old-fashioned notion of right and wrong, but in the relative righteousness of the cause the lie serves.

Take, for example, Oracle and Larry Ellison and their shameful efforts (beyond the occasional misrepresentations by their salespeople) to find ways to discredit Microsoft-friendly advocacy groups by rifling through their trash. Now, Ellison is a guy I've picked on pretty hard in past columns, so I should tell you that while I've had dealings with a number of his henchmen, I've never actually met him. My general impression of Ellison, haircut aside, is that he is not the devil. I suspect, though, that when he meets the devil (a certainty in my estimation), he won't need an interpreter.

According to an editorial in *The Wall Street Journal* (June 29, 2000), Oracle's defense for hiring a dirty-tricks firm to go dumpster diving is that they ordered their paid surrogates not to do anything illegal. That was good of them, don't you think? Oracle's stated reason for these shenanigans was that "left undisclosed, these Microsoft front groups could have improperly influenced the outcome of one of the most important antitrust cases in U.S. history." Such is the state of our ethical universe—grand gestures justifying slimy antics, all funded by our software license dollars.

The meeting adjourned some four hours later without a satisfactory conclusion, and I found myself saddled with one of the worst circumstances of my career. Not the hopelessly late project; as I'm sure you know, being late and over budget on some projects simply happens now and then in IT. Project planning and the assertions it makes about budget, head count and timelines are always extrapolations beyond the data and can't take into account things like budget squeezes, key user turnover and a thousand other unknowables. When you get behind in a project, you do what you can to fix it, you report the problem to top management and the stakeholders, then you take your lumps and move on.

My problem was what to do about the lies that my friend had either made or allowed others to make in an effort to mask the shortfalls of his project. Beyond the disappointment I felt, I was mystified by his behavior and worried about the extent to which I might have, inadvertently, contributed to his decision to lie. Was he bullied into it by my insistence that his project team deliver on time? Was he feeling such a deep and misguided sense of loyalty to me and my career that he was afraid his performance would make me look bad? Under the circumstances, how could I repay his loyalty in kind?

I knew one thing for certain: He should have had no fear of termination for falling behind on his project. Trust me when I tell you, I dislike firing people so much that in order to get dis-

A large flock of ducks is shown in flight against a white background. The ducks are in various stages of flight, with wings spread wide. In the center of the image, there is a black rectangular text box containing white text. Below the main flock, there is a smaller group of ducks flying in a line.

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missed by me you have to do something dreadful on a cosmic scale and shoot my dog in front of my children to boot. In 25 years, I've never fired anyone for making a mistake. I have, without exception, kicked out any person I've caught making a mistake and then lying about it. Sometimes the costs, the loss of talent and the hit to morale among those we never confided in has been enormous. The alternative, allowing the lie to slide, would have been far worse in the long run.

The case for ethical leadership, beyond the karmic, is compelling to the point of absolute. CIOs, in their role as leaders and the primary consumers in this planet-size technology bazaar, have a vested interest (for reasons as simple as accuracy and speed) in establishing truth in its purest form as a non-negotiable condition in our business dealings with our customers, our suppliers, our peers and our people. Not just a story or a consensus, but an honest-to-God, down-home, accurate representation of the way the world is, affirming that the distance between what is true and what is untrue cannot be halved for anyone's purposes.

I spent the better part of the rest of that week meeting with various members of the project team to understand where we stood and the gravity and source of the misrepresentations. For

a while after I made the decision to fire him, I clung to a small hope that I might, somehow, salvage our friendship in spite of what I felt I had to do.

He and I went to lunch a couple days later so that I could listen to what he had to say and share my own feelings about the way he had handled things. During the course of a strained and indigestive conversation, we seemed to move further and further apart, backing into our respective corners, refusing to come out. It occurred to me then that the relationship could never be the same, regardless of what I did next.

Later that week, he and I sat across from one another in my conference room to plan a quick, orderly transition for his replacement. My number-one objective, and the only thing I had left to offer him, was a dignified exit. Friends no more, we parted company deeply disappointed in one another. He very quickly found another senior IT job. We have not, nor have our families, spoken to one another since.

I would do it again, if I had to. **CIO**

Share your firing war stories with Anonymous via e-mail at confidential@cio.com. Anonymous has been a CIO at household-name companies in various industries for more than 12 years.

Coming in CIO

Look for These Articles in Future Issues

Managing Remote IT Workers

Many IT employees work remotely, and often a company's ability to offer this option is key to recruitment and retention. But how can CIOs effectively motivate, evaluate and otherwise manage these workers when daily personal interaction isn't part of the scenario? Learn from the experiences of managers and remote workers who are dealing with this issue.

Asset Management

A CIO who applies good asset management techniques using IT tools and

services could affect the rest of the company's practices, not just in the IT department. There's a lot of old techno-junk out there and the piles are growing—and more laws and regulations are dictating that people dispose of this stuff responsibly. Knowing what you have, whether it's worth keeping, and how to get rid of it safely is important for you to understand.

10 Steps to Punditry

Gurus are everywhere—from business magazines and the boardrooms, pundits are sharing their wisdom and charging thousands of dollars in speaking fees. They spend their days writing books and talking about the new economy, broadband and the future. How

do they do it? Better yet, how can you? *CIO* offers 10 easy steps that will make you a successful source of management enlightenment.

Letting Go

You've learned how to recruit and retain IT workers, but how do you fire them? Experts say that knowing how to fire people correctly is a skill few IT leaders display or bother to cultivate. Do it the right way and people leave your organization sad but not enraged. Screw it up and you run the risks of burning bridges, alienating those who stay and hampering your ability to make future hires. *CIO* will help you learn to cope with the personal stress of letting people go and identify what it takes to fire someone with dignity.



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Where documents are going

Strange Brew

BY WILLIAM F. ZACHMANN

THE DAWN OF THE THIRD millennium brings with it a spectacular shift in alliances among the major IT vendors. It is the renewal, after more than a decade of bitter win-lose confrontation, of win-win collaboration between IBM and Microsoft. Both companies will benefit as a result. More important, renewed cooperation will bring major benefits to user organizations as well, reducing risks and improving returns on IT infrastructure investments.

Collaboration between IBM and Microsoft throughout the 1980s created the PC revolution. It laid the foundation for the distributed computing era of the early '90s and the spectacular rise of the Internet in the late '90s, even though IBM/Microsoft cooperation ended late in 1990 with the acrimonious split over OS/2 and Windows.

For the entire decade of the '90s, the primary divide in the industry has been between what I have long called the ABM ("Anyone But Microsoft") Coalition led (though rather quietly and behind the scenes) by IBM. The cast of characters in the ABM Coalition has changed over the years. In recent years, Sun and Oracle have been the most visible (and vocal) ABM



Coalition members. IBM has always, however, been the major mover behind the scenes. The fundamental win-lose confrontation of IBM and its ABM allies defined the structure of the industry throughout the 1990s.

No more. In a spectacular, but inconspicuous manner, IBM has realigned its competitive posture and shifted to a radically different position—far more favorable toward Microsoft than toward Sun and Oracle. The fundamental reason is that IBM's erstwhile allies pose far greater and more immediate threats to it than Microsoft does, and IBM has caught on.

The Sun Also Rises

The revenue prize where IBM and Microsoft are direct competitors today is insignificant compared with the hundreds of millions, billions even, of dollars at stake where IBM is in direct competition with Sun and Oracle. Just about every penny of

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revenue booked by Sun or Oracle is money won in direct competition with IBM. Only a small portion of Microsoft's revenue, however, comes from areas in which IBM offers directly competitive products. On the contrary, IBM is one of the largest vendors of Windows systems.

Earlier this year, IBM was finally roused from its post-OS wars trauma to realize that it was not Microsoft but Sun and Oracle that have really been picking its pockets lately. The result: a shift by IBM away from a Sun/Oracle bias toward a much more Microsoft-friendly position. Joining with

IBM, until this year, was solidly in the pro-Java anti-Microsoft camp, which has greatly boosted the case for Java versus COM+.

Microsoft last May in submitting the Simple Object Access Protocol 1.1 (SOAP) specification proposal to the Internet Engineering Task Force was one of the first public manifestations of that shift.

This is, however, the tip of the iceberg. As important as SOAP is likely to turn out to be in its own right (and it will turn out to be important—it extends the use of XML to make it a very simple yet very powerful tool for remote-procedure invocation as well as for the exchange of typed data), the SOAP 1.1 submission is far more important as a symbol of renewed win-win collaboration and cooperation between IBM and Microsoft.

Although the dotcom gold rush of the past few years has helped sell billions of dollars of Sun servers and Oracle databases, the IBM mainframe and Windows networks remain as the real centers of gravity for a very large proportion of corporate IT operations. The rush to the Web has brought issues of enterprise application integration (EAI) to the fore and rallied the old (and flagging) CORBA force behind a renewed push based on Java, Enterprise Java Beans and Java 2 Enterprise Edition. Microsoft, of course, offers an alternative approach with Component Object Model Plus (COM+), BizTalk and so forth.

Cutting Back on Java

IBM, until this year, was solidly in the pro-Java anti-Microsoft camp, which has greatly boosted the case for Java versus COM+ with most industry pundits as well as with many customers. It has also, however, greatly boosted Sun's ability to sell its servers and Oracle's ability to sell its databases into IBM accounts and inadvertently boosted the potential complexity

of enterprise applications integration for many IBM customers.

The truth of the matter is that the approaches of both the Sun/Oracle axis and Microsoft offer reasonable ways to do the job that nearly all enterprises will need to do over the next few years. However, in an organization where IT revolves around IBM mainframes and Windows networks, introducing Java-oriented middleware, which requires skill sets entirely different from what the organization has already developed, is hardly the best way to reduce complexity. On the contrary, to do so will certainly increase complexity (and risk) across the board, at least in the near term. Yet IBM's former pro-Java posture necessarily encouraged such customers to do exactly that!

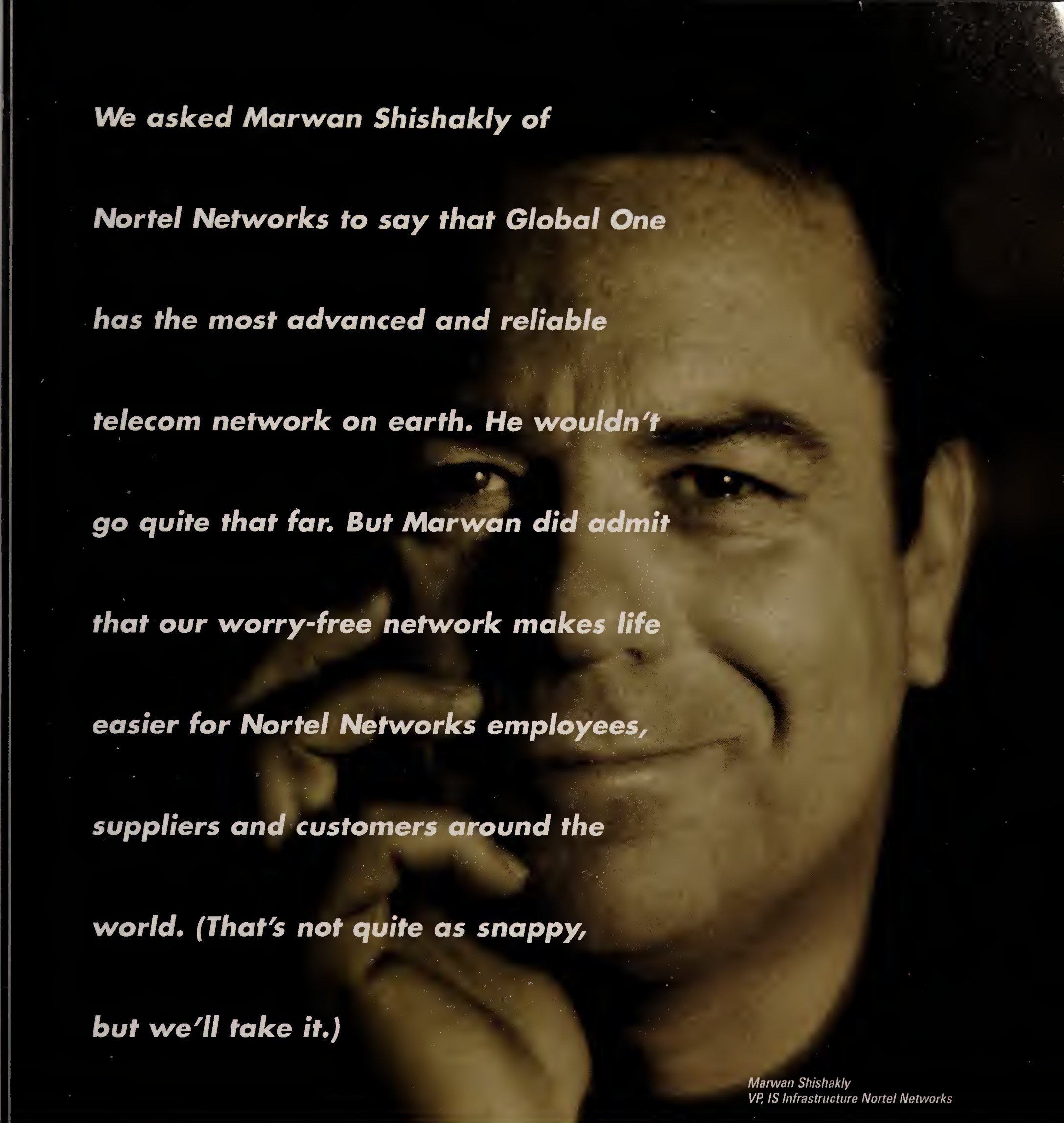
Even worse, from IBM's point of view, taking a seat in the pro-Java camp in effect was making IBM into a sales prospector for Sun and Oracle. If an organization buys into the notion of Java-based middleware as the key to its EAI strategy, Sun servers and Oracle database software become much more attractive alternatives to IBM mainframes and DB2. IBM, in herding customers toward a Java-centric middleware strategy, not only increases risks and complexity for many of its customers but also helps its most dangerous competitors get into its accounts in the process. It is small wonder then that IBM has decided to opt for greater cooperation with Microsoft.

IBM will not, of course, abandon Java. IBM will, however, increasingly adopt the Microsoft alternative as an equally viable option, work closely in the future with Microsoft and support IBM customers equally, regardless of which alternative they prefer. Perhaps even more important, IBM will work to help customers do what in fact most customers want to do: mix and match Java-centric and COM+-based components on a case-by-case basis, rather than be forced to make ideological choices forced on them by win-lose confrontations between vendors.

The end result of IBM's shift in attitude will be that user organizations will be able to build EAI infrastructures more flexibly and with lower risk. They will be able to choose the best tools for particular jobs without betting on one alternative to the exclusion of the other. There's no doubt that renewed win-win collaboration and cooperation between IBM and Microsoft will benefit both vendors. The biggest winners, however, will be IBM and Microsoft customers. **CIO**

William F. Zachmann is a vice president of the Meta Group, an IT research company based in Stamford, Conn.





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*Marwan Shishakly
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No-Shows of Support



Gary J. Beach

AS I PUMP GASOLINE on a cold blustery evening in Massachusetts, I continue to be steaming mad about the events of the day in Washington, D.C., where I testified before a bipartisan congressional commission focused on setting our nation's e-learning agenda for the coming years.

Called the Web Based Education Commission, the group invited America's leading businesses, education institutions and nonprofits to share their ideas on the road ahead. Several hundred responded. Only six were actual for-profit businesses. And every one of those were technology companies hoping to sell more tech toys to our nation's schools.

When my turn came to testify, I eschewed my written remarks and went on a soliloquy on how disappointing it was that so few businesses submitted testimony. I also told former Sen. Kerrey of Nebraska that I would pay for admission to a future hearing to listen to the chief executive officers of large, nontechnology companies testify.

The chieftains of American businesses are quick to critique how America's K-through-higher-education public school system is not producing enough workers with the technical skills needed in the 21st century workplace. But when action and leadership are called for, our nation's business leaders are no-shows.

Retooling public education is a systemic problem calling for systemic solutions. I am convinced corporate America's leaders care more about parochial, in-my-affluent-ZIP-code

microefforts that make for great photo ops in corporate annual reports than they do about jumping in and making things better nationally.

Those who did testify that day told story after story of how pilot technology programs in their schools were producing excellent results. The only downside? Not enough money to roll them out districtwide.

So, as I stood at that gas pump staring at the \$1.50 price on a gallon of gas, the following idea struck me. How much of that \$1.50 in Massachusetts was actually a tax? Where did that money go?

I researched it and discovered that in Massachusetts 21 cents on every gallon goes to the federal Highway Trust Fund, a program instituted by the Highway Revenue Act of 1956 to fund the construction of the interstate highway system.

No one likes a tax, but the alternative—a future tech-illiterate workforce—is not a pleasant option either.

I would like the 107th Congress to consider this idea. Apply a one-half of 1 percent excise tax on the sales of technology products and services over \$1,000. This approach ensures low-income, first-time buyers would be exempt. Companies using technology the most, companies that need a tech-trained workforce, would pay the most.

IDC reports that American businesses spend about \$400 billion a year on technology products and services. The \$2 billion raised annually by this idea would go to fund the National Education Technology Trust Fund. The fund would be managed by a bipartisan congressional committee. Each year every penny collected would be dispersed to the 50 states to foster quicker adoption of technology in our education process.

Left to their own, American businesses will never act.



MANAGEMENT CRISIS

Roberta hears about
client crisis on way to
meeting in Tucson.
She goes back to office.
She misses her flight.
She misses her meeting.

CRISIS MANAGEMENT

Roberta hears about
client crisis on way to
meeting in Tucson.
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crucial information from
company intranet.
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REPRINT SERVICES

RMS 717 399-1900, ext. 123; e-mail

bmolloy@rmsreprints.com

For further sales information, visit

www.cio.com/marketing/salesoffices.html.

CIO is published in the United States as well as in:

Australia, CIO Australia

P.O. Box 295, St. Leonards, NSW 2065, Australia

61-2-9439-5133; www.idg.com.au

Canada, CIO Canada (monthly)

CIO Enterprise Canada (biweekly)

Laurentian Technomedia Inc., 55 Town Centre Ct.

Suite 302, Scarborough, M1P 4X4, Ontario, Canada

416-290-0240; www.lti.on.ca/cio

China, CEO & CIO China

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8610-6825-9416; www.ceocio.com.cn

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 Framingham, Massachusetts 01701-9208,
 508 872-0080.

Postal Information: CIO (ISSN 0894-9301) is

published semimonthly; and as a combined issue December 15/January 1 by CXO Media Inc., 492 Old Connecticut Path, P.O. Box 9208, Framingham, Massachusetts 01701-9208. Periodicals postage paid at Framingham, Mass., and at additional mailing offices.

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FLASH BACK for a moment to the fifth grade (if it's not too painful), when your math teacher asked you to solve a scale puzzle like this one: You have nine coins, identical in appearance. One is counterfeit, and it is heavier than the others. Use the balance scale only twice to figure out which is the heavy one.

Now to be perfectly honest you don't actually *need* a scale to solve the puzzle. You should dredge one up anyway, though, because it is so elegant and extremely satisfying to use.

The balance scale is the simplest form of weighing machine, and the oldest. The always-resourceful Egyptians employed them more than 5,000 years ago, suspending two pans from either end of a beam that hung from a vertical support. They filled

one pan with a known weight, the other with the object to be weighed.

Before the advent of international standards for weights and measures, civilizations came up with their own. The Greeks and Egyptians used a wheat seed as the smallest unit of weight. The Arabs weighed gold, silver and precious gems using a small bean called the karob (the origin of the word *carat*).

While the balance scale is still in use today, both as machine and metaphor, its

descendants have taken over much of its business. Spring scales, such as the one you avoid stepping on in your bathroom, came along in the early 1700s. Today's electronic scales can weigh tractor-trailers and freight trains, while quartz microbalances can calculate the density of gases weighing up to 0.1 gram. **CIO**

Longing to wax nostalgic over a favorite technology? Send your thoughts to Features Editor Sara Shay at sshay@cio.com.



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GOOD MORNING



Once again, today has arrived. And it brings with it the same meetings, the same problems, and, in many cases, the same solutions. Unfortunately, many of those same solutions aren't working. Because business has been transformed by the little letter e. And the technology that was once the domain of twentysomethings with a website and a warehouse in their garage is now an integral part of every business. Fortunately, however, the same principles that made for good management before still make good eBusiness sense. Of course, that's a lot more difficult now that your business isn't contained by four walls and needs to be accessible anywhere, anytime, for anyone. That's why it's more important than ever to have the very best software. Software that manages your business processes – integrating all parts of your company, including suppliers and partners, to make sure that they're working together seamlessly. Software that manages information – storing, accessing, and utilizing the vast wealth of knowledge that you continually gather about yourself and your customers. Software that manages your infrastructure – maintaining and securing your assets while letting you see the big picture to ensure that everything keeps running smoothly. There's no doubt about it. Things have changed. But that just means there will be new solutions to the old problems. And we think that's a change for the better.

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